# Railway Age

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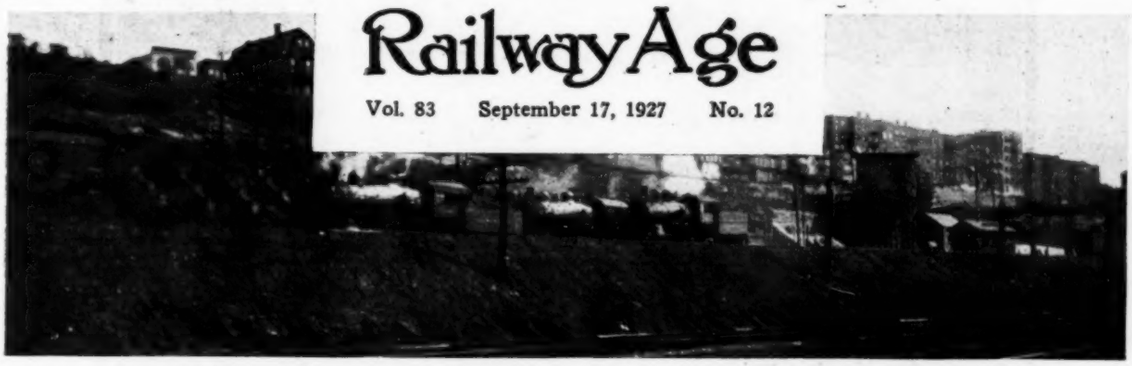

*New York Central, Putnam Division Terminal, New York City*

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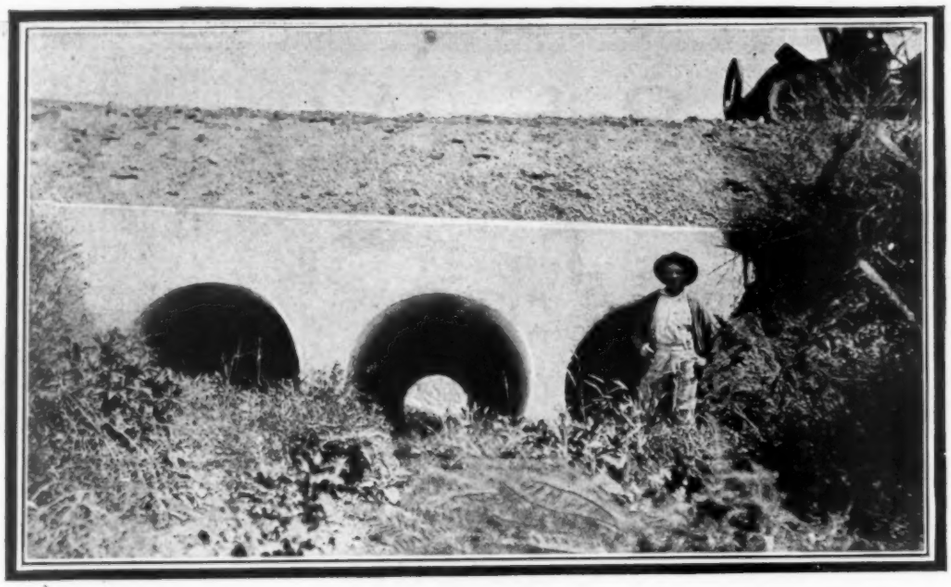

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Railway Age

Vol. 83, No. 12 September 17, 1927

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## Scientific Handling of Freight Important

THE importance of efficient freight handling has been recognized by the Freight Station Section of the American Railway Association for some time. The American Railway Engineering Association has also been active in this direction and a sub-committee on freight station design has been functioning regularly for several years. The old idea that any sort of facilities and methods are good enough for a freight station is rapidly disappearing. Unfortunately, all operating officers have not been equally alert to the change in sentiment. Too frequently the business of handling freight is left to the platform foreman, who may or may not be familiar with modern methods. It is of little value to have a perfectly designed freight station, with floors having smooth trucking surfaces and with movable bridges connecting the platforms, if the operating methods have not kept pace with the improvements in design. It costs a great deal of money to build a modern station. Efficient freight handling is, therefore, essential if the investment is to be justified. The excellent improvement shown where this phase of operation is really studied proves the value of the application of modern methods. A freight station that is inefficiently operated is a source of so much actual and potential loss that it should not be tolerated on any railway.

## Buses a Feature at Electric Railway Convention

THE most complete exhibit of motor buses and bus accessories which will be available this year to those interested in highway equipment will be displayed at Cleveland, Ohio, on October 3 to 7, in connection with the annual convention of the American Electric Railway Association. Officers of steam railways who have the purchase and operation of motor buses and their accessories in mind should find an inspection of the most modern designs well worth while. Motor bus design is still a matter of radical change. What was the "last word" in motor buses even a very few years ago is now obsolete in comparison with the newest models. As operators of an increasing number of buses, the steam railways should not fail to keep up with the modern trend in design, which is in the direction of greater comfort, safety, reliability and economy. In recent years, the motor bus exhibit has been a larger and larger part of the electric railway convention. This year is no exception. Officers of steam railways have always found material of interest in these conventions and exhibits, and have attended them in growing numbers. This year, in which there has been no Atlantic City exhibit of motor buses and in which the Railroad Motor Transport Conference has been marking time, is expected to find still more of them at Cleveland, inspecting the new products of the bus and bus equipment manufacturers and attending the sessions of the convention itself, in which questions concerning bus operation will be thoroughly discussed.

## A Story of the Railroads and the Flood

THE railroads played an heroic role in the Mississippi river flood of 1927. Not only did they work against heavy odds to maintain lines of communication in the stricken territory and to restore them after weeks of protracted effort came to naught, but they also rendered invaluable service to the public authorities engaged in the fight against the flood as well as to the relief organization of the American Red Cross. Transportation for flood victims and train service for the movement of food, clothing, drinking water and other necessities of life for which no bills were rendered, entailed the expenditure of many hundred thousands of dollars, the return on which must be measured entirely in good will. The story of the flood has been presented as news in the daily press and in this and other periodicals, but in the face of the insurmountable obstacles imposed to any effort for accurate or complete reporting, the contemporaneous record has necessarily been fragmentary. In view of this, the American Railway Engineering Association has rendered a valuable service in preparing a record of the place occupied by the railroads in this disaster, both as suffered and as an agency for relief and restoration. This information, recently presented in Bulletin 297 of that association and abstracted elsewhere in this issue, comprises a valuable contribution to current history and should prove useful as source of material for further historic study and as data for engineering investigations. Prepared by an engineering organization, one would expect that it would contain a wealth of information on the methods pursued in preparing for and combating flood conditions and much material of this character is presented. However, if any criticism is to be offered, it is that the engineers have not done justice to themselves through failure to give a more detailed record of the many ways in which resourcefulness and ingenuity

were evinced in meeting this great emergency. The treatment of such facts could well have been the most valuable feature of this bulletin.

## Railway Results in July and Seven Months

THE decline in railway net return in July is shown by complete statistics for this month, which were issued within the last week, to have been the largest that has occurred in any month in more than three years, or since May, 1924. Following as it did the large decline in June, it made the total net operating income earned in the first seven months of the year about $55,600,000 less than in the first seven months of 1926, in spite of the large investment that has been made in the railways within the last year. The decline in net operating income in July was $32,600,000, or 28 per cent. The loss was divided among all the three large groups of roads. The net operating income of the eastern roads declined from $59,000,000 to $46,000,000, or 22 per cent; that of the southern roads from $13,000,000 to $9,000,000, or 30 per cent; and that of the western roads from $44,900,000 to $29,300,000, or 35 per cent. In the first seven months of the year the net return of the eastern lines declined $15,500,000; that of the southern roads about $15,000,000, and that of the western roads about $25,400,000.

The decline in railway net that recently has occurred is due to a combination of causes. The roads have continued to lose passenger business. They had an increase in freight business in the early months of the year, but this has been followed by a decline in carloadings due partly to the coal strike. There was a decline in their total earnings in July of almost 9 per cent, while the reduction in their operating expenses was only about 3 per cent.

Carloadings have continued since July to be smaller than last year, and it seems probable the net return reported for both August and September will be less than in 1926. Whether it will show a further decrease or an increase in the last quarter of the year will depend mainly upon whether there is an expansion in general business resulting in an increased movement of freight.

The sharp decline in net operating income in the summer months of this year well illustrates the comparative instability of conditions in the railroad industry. Before the war operating expenses and taxes consumed only about 70 per cent of total earnings, while under present conditions, even in a year of record-breaking freight traffic such as 1926, they consume more than 80 per cent of total earnings. This reduction of the margin of total earnings that goes to net operating income to 20 per cent or less makes the effect produced upon net return by a comparatively small change in earnings or operating expenses relatively much greater than it was before the war. The railways of western territory have never in any year earned their so-called "fair return." The railways of the country as a whole have earned an average of as much as 5¾ per cent on their tentative valuation only in 1926, and it is now evident that they will again fail to earn it in 1927. Meantime, the Interstate Commerce Commission is reducing the rates even of western railways to aid other industries that claim to be in a condition of depression, and the question as to when the commission will begin to carry out the rate-making provisions of the Transportation Act by letting the railways earn the return to which it has repeatedly held they are entitled still remains unanswered.

## Are You Going to the Iron Horse Fair?

IT has been our privilege to see at Halethorpe (Baltimore) the preparations the Baltimore & Ohio is making for its centenary exhibition and pageant to be held from September 24 to October 8. From what we have actually seen—and the show does not open for a week yet—we earnestly believe that no person with an interest in railroads who can arrange to attend should miss the event. There will be interesting things to be seen which one could otherwise not see without traveling all over the country—and even to Europe—and, in the pageant, the various steps in transportation's progress will pass by the grandstand to give the onlooker a panorama such as has never before been shown to an American public.

This parade will require 1 hr. 45 min. to pass the grandstand, which gives some idea of its magnitude and completeness. Locomotives of almost 100 years ago will go by under their own steam—the "Tom Thumb," the New York Central's "De Witt Clinton," the Pennsylvania's "John Bull," and scores of others—along with modern locomotives and cars.

In the central building of the exhibition are 31 models, full size, which trace the development of the steam locomotive from Newton's idea in 1680 down to 1850 when it began to take on something of its modern form. Lucky the students of mechanical engineering or economic history who see this exhibit—they will absorb a whole college course in a short stroll.

The exhibition is a Baltimore & Ohio affair. That road has conceived it, is presenting it and is footing the bill. However, the show is not a "one road affair" by any means. Wherever assistance from other lines was necessary to help complete the picture they generously came forward, as have the allied services such as the Pullman Company, the Post Office department, the telephone and telegraph companies and supply manufacturers. The visitor, therefore, will not see alone the history of the Baltimore & Ohio, but in a larger sense the history of railroad transportation itself—with a glimpse at Europe's development, represented by the Great Western's "North Star" and its trim green locomotive No. 6000, "King George V," the last word in British locomotive design.

The Baltimore & Ohio is extending a cordial invitation to everyone to "come to its party." There is no admission charge and, for those not entitled to free transportation on its lines, it offers the round trip to Halethorpe at the one-way fare plus $1. The show, we believe, deserves to attract one of the largest assemblages of railroad "fans" ever brought together in America.

## Personnel Problems in Mechanical Department

TWO rather important tendencies are worthy of comment in connection with personnel problems in the mechanical department. There has been a growing tendency during the past few years to establish foremen's clubs. The programs have related largely to the consideration of shop practices and methods, or to matters of general interest to a diversified group of foremen and supervisors. Following the lead of industry, the present tendency seems to be more in the direction of the formation of study or conference groups among the foremen and supervisors, which deal with the human relations problems to a greater extent than has been the practice in the past.

Along with the recognition of the importance of improved supervision has come a realization that more attention must be given to the selection and training of mechanical department employees. This is shown in one way by the greater interest that is being taken in apprenticeship training and the fact that some of the leaders in this movement have broken away from the more approved practices which have become somewhat standardized, and are experimenting in various directions. While in some instances this has resulted from an effort to reduce the cost of the apprenticeship training to a minimum, in other instances it has been done in the belief that the new practices would be productive of better results. Some of these new methods have now been in use long enough to get an idea of their relative values. Undoubtedly some effort will be made in the near future by the Mechanical Division or one of the other mechanical department organizations to devise a clearing house where men engaged in railway trades training can get together to compare notes and decide upon the relative value of different practices for meeting specific conditions. There appears to be a growing need for such a clearing house for the consideration of problems relating to both foremanship and apprenticeship training.

## Are You Picking the Right Men?

"IF you can show me where my road can get its money back, I will send as many men to the convention as you suggest," was the statement of one of the keenest and most thorough-going operating officers in the country to an officer of one of the railway associations recently. Such an attitude indicates a spirit of co-operation which will be welcomed by the officers of those associations which are striving to do a worthwhile job in increasing the efficiency of the branches of railway service represented by their membership. It places a responsibility on the officers of these associations, which most of them already realize, to so conduct their work and to so arrange the programs for their conventions as to offer the maximum opportunity for interested railway men to gain information that will be of value to them in the conduct of their regular work.

But efficient work on the part of the association is only half of the solution of the problem. It is equally important that those men whom a road sends to a convention go with the intent of securing everything of value that is there for them. It is an old but true saying that one realizes from an association in proportion to what he puts into it. Even with the most valuable of programs, it is possible that a road may gain little that is of value from an investment in convention attendance if the men selected take little or no interest in the program and regard the meeting as an opportunity for an outing.

Much depends upon the attitude of the men selected. One measure of their interest is their willingness to contribute to the support of the association by the payment of dues from their own funds, for it is evident that if a man makes the sacrifice necessary to maintain membership, he has more than a nominal interest in the organization. But this is not the sole test, for there are many men outside the membership of most of the railway organizations who will derive much benefit from participation in their activities if the opportunity is offered. These men, in common with those who hold membership, should receive consideration when selecting those to attend the convention. That road will receive the greatest benefit from its expenditure for convention attendance which selects its men most wisely and which then impresses on them the fact that their expense accounts represent an investment on which the road expects and is entitled to receive a return. One way of increasing the likelihood of securing this return is to require the men to take sufficient notes of the proceedings and of the exhibits to enable them to make reports to their officers of those ideas and devices which they believe warrant consideration by their roads.

## Using Freight Rates to Regulate Business Profits

IS it economically sound or constitutional for any government authority to regulate railway freight rates with the purpose and effect of increasing prosperity in one industry by reducing the rates it must pay and of reducing prosperity in another industry by increasing the rates it must pay? Is it a proper or constitutional function of a government authority to regulate freight rates with the purpose and effect of increasing prosperity in one part of an industry that is not lawfully subject to its regulation and of reducing it in another part of the same industry?

This is what the Interstate Commerce Commission actually is doing. Perhaps the Hoch-Smith resolution authorizes it to so do. If so, is the Hoch-Smith resolution constitutional? Regardless of that, the nation may well ask itself whether it wants the Interstate Commerce Commission to continue, as it has now begun, to serve as a "special providence" by using adjustments of freight rates to help some industries and repress others.

The commission has rendered decisions requiring rates on coal produced in union mines in Pennsylvania, Ohio, Indiana and Illinois to be made lower in future relatively to those on coal produced in non-union mines in West Virginia and Kentucky. Previous decisions of the commission in similar cases leave no room for doubt as to the true ground for its recent decisions in these cases. The union mines for some years have been unable to

compete successfully with the non-union mines. The principal reasons have been that they have had strikes and paid higher wages. Undoubtedly, if the two classes of mines had been paying the same wages, those in Pennsylvania, Ohio, Indiana and Illinois would not have got into the condition of "depression" from which they are now suffering. It was, however, because of their condition of "depression" that the commission reduced their rates. There could not be a plainer case of the use of regulation of rates for the purpose of partially equalizing differences in economic conditions in a single industry that are not due to differences in freight rates or any other transportation condition.

Likewise, the commission has decided in favor of reductions of rates on deciduous fruits from California because of alleged depression in the deciduous fruit industry. Here, again, the condition of the industry to which reduced rates have been granted is not due to transportation conditions or unreasonable freight rates. The commission virtually conceded this by saying that the new rates fixed are the lowest that lawfully could be made, which is quite different from holding that, on ordinary principles of rate-making, they are just and reasonable.

Commissioner Woodlock, in an opinion in the deciduous fruit case, especially called attention to the fact that the Hoch-Smith resolution imposes upon the commission the duty, when it reduces rates for the benefit of a particular industry, to make compensating advances on commodities of other industries if these are needed to maintain an adequate transportation service. How can the commission determine on what commodities it should make these compensating advances? Only by looking about and finding industries that are so prosperous they can afford to pay higher rates. But to determine whether an industry is prosperous enough to pay an advance in rates would require as much investigation as to determine whether an industry is so depressed that it should be given a reduction of rates. This obviously points to the conclusion that in order to carry out the policy of using freight rates to penalize industries that are prosperous and to help industries that are not, the commission must make a survey of the conditions in all the important industries of the country.

## *Finding Prosperous Industries to Penalize*

In making such a survey the commission is sure to encounter certain difficulties. Witnesses for an industry that is depressed will, no doubt, give it information to prove the existence of depression, but witnesses for an industry that is highly prosperous will hardly show equal alacrity in giving it information to justify an advance in its freight rates. The commission lacks lawful authority to compel the managers of any business concerns excepting railways to appear before it and tell just how much money they are making and how and why they are making it. It follows, therefore, that while the commission's information regarding industries that are depressed might be made complete, its information regarding those that are prosperous, and as to just how prosperous they are, never could be made adequate.

In the past it has been the accepted view that rates should be based upon the cost incurred by the railways in rendering service and on the value to the shipper of the service rendered. The principle of basing rates upon the value of the service also has been called that of basing them on "what the traffic will bear." The new principle being introduced into rate regulation is that of basing the rates on what it is supposed the shipper can bear rather than on what his freight can reasonably be asked to bear. The operators of union coal mines have become unprosperous, not because of coal prices, but because they have been unable to so manage their business as to meet the competition of the owners of non-union coal mines. This has nothing whatever to do with either the cost or the value of the transportation service of hauling coal. There has been an over-production of grapes in California for the unlawful manufacture of wine, and the price of grapes has declined. This does affect the value of the service of transporting them, but does not affect the cost of transporting them. The rates on them are reduced, however, not because they have exceeded the value of the service of transportation, but because the grape growers have so managed their business that they cannot make satisfactory profits.

If the Interstate Commerce Commission is to regulate rates with a view to increasing profits in industries that are making too little and reducing them in industries that are making too much, and at the same time assuring the railways adequate earnings, it will need more information, fairness and wisdom than have ever yet been possessed by any body of men. Rates have been made and can be regulated safely and beneficially in accordance with a few simple principles. The cost of transportation service can be approximately ascertained. The value of the service can be approximately determined in the light of evidence regarding commodity values, lengths of haul and competitive conditions. The net returns the railways are earning can be accurately determined and the net return they should be allowed to earn can be settled. But when a regulating body attempts to go back of the prices of commodities to the profits made by producers for a measure of the rates that should be charged them, rate regulation must soon become an arbitrary exercise of power dictated by ignorance, prejudice and politics.

Said Commissioner Hall, in his dissenting opinion in the Lake Cargo coal case: "Rate regulation would be denatured if made into an equalizer for the fortunes and abilities of men, whether in the same or different localities. Its function is to keep freight rates within the bounds of reason and fairness in the light of attending or surrounding transportation conditions and thereby to afford to all persons and localities the benefit of adequate transportation service. This done, its function is performed, leaving to individual initiative to deal with the many and complex industrial problems of our time. These problems we need not even discuss. We have for them as a regulating body no solution." This is sound doctrine, but apparently will be in future more honored in the breach than in the observance unless leaders of business and public opinion awaken to a realization of the significance of some recent decisions in important rate cases.

It can hardly be seriously contended on economic grounds that depression or prosperity alone in an industry or part of an industry can justify changes in its rates. If justification for such regulation of rates is to be found in any act of Congress it must be sought in the Hoch-Smith resolution. If it can be found in the Hoch-Smith resolution, then that resolution is wholly indefensible on economic grounds, and should be repealed. A measure that can be interpreted to authorize and direct a government body to use regulation of freight rates to try to equalize differences in prosperity in different industries, or in different parts of the same industry, regardless of the fairness from a transportation standpoint of the rates made is a measure authorizing a degress of arbitrary and unfair discrimination in the making or rates such as was not approached even in the palmy days of secret rebating.

*McGehee, Ark., Was Completely Inundated. Missouri Pacific Engine Terminal and Division Offices in Center and Left Foreground*

# What the Flood Did to the Railways

## *A. R. E. A. collects information as to damage, protective measures and traffic interruptions*

THE Mississippi river flood of 1927 cost the railways $10,000,000, according to an estimate made by a committee of the American Railway Engineering Association as reported in Bulletin 297, just issued by that organization and abstracted below. This bulletin was prepared under the direction of a committee of chief engineers, consisting of A. F. Blaess, Illinois Central, chairman; R. W. Barnes, Southern Pacific Lines; Hadley Baldwin, Cleveland, Cincinnati, Chicago & St. Louis; C. R. Mee, Louisiana Railway & Navigation Company; E. A. Hadley, Missouri Pacific; W. S. Hanley, St. Louis Southwestern; C. S. Kirkpatrick, Gulf Coast Lines; F. G. Jonah, St. Louis-San Francisco; E. F. Mitchell, Texas & Pacific; E. F. Salisbury, Louisiana & Arkansas, and B. A. Wood, Mobile & Ohio.

Operation was suspended for periods ranging from 10 days to 120 days on 3,000 miles of railways, the longer period applying, however, principally to branch lines. Breaks in levees inundated more than 18,000 square miles of land, directly affecting 750,000 people and causing property damage which, in the aggregate, has been estimated by Herbert Hoover to exceed $300,000,000.

### Summary of Damage to Railroads

Thirteen railroads were either seriously damaged or put to heavy expense to maintain such service as was possible under the existing conditions. The actual physical damage to the railroads, including the cost of protective measures prior to and during the flood, is approximately $10,000,000. This figure, however, does not include the increased cost of maintenance of repaired tracks which will follow the restoration of service. It is impossible even to estimate with any degree of accuracy the further damage to these railroads, which has resulted through the delay and loss of traffic, the cost of trains furnished for rescue and relief service and of detouring over other lines, or the ultimate effect upon railroad business through the damage occasioned by the loss of crops and general interruption to business in territory adjacent to these railroads.

Most of the damage done was reported in the *Railway Age* at the time of the flood. The actual cost is not available on some railways, but the following list gives the figures on those railways which were able to report at the time the material for the bulletin was gathered. It must be understood that the figures given constitute only the cost of protecting the tracks and restoring them to normal operation, and do not include losses and expenses due to rescue work, loss of traffic, detour charges and the increased maintenance expense which will continue for some time on the flooded tracks.

| | |
|---|---|
| Cleveland, Cincinnati, Chicago & St. Louis | $46,000 |
| Chicago, Rock Island & Pacific | 283,000 |
| Illinois Central | 2,174,340 |
| Louisiana & Arkansas | 9,700 |
| Louisiana Railway & Navigation Co. | 125,000 |
| Missouri Pacific | 1,002,260* |
| Gulf Coast Lines | 200,000 |
| Southern Pacific Lines | 150,000 |
| St. Louis-San Francisco | 250,000 |
| Texas & Pacific | 500,000 |
| St. Louis Southwestern | 562,000 |

*Note: Does not include loss of Baring Cross Bridge at Little Rock, Ark.

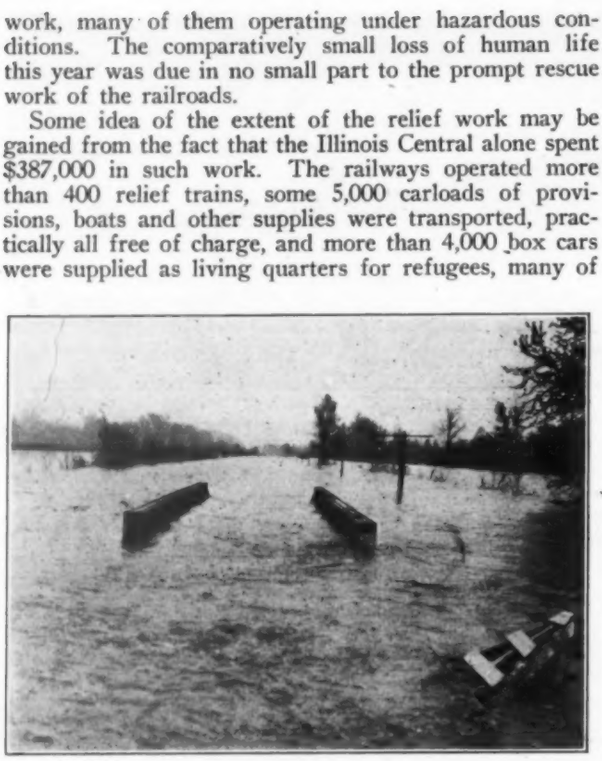
### Rescue and Relief Work

The river, when in flood, is a constant menace to those who make their homes behind the levees, as the level of the water is often many feet above the land. When the levee breaks the water rushes across the country like a tidal wave, sweeping everything before it. The people who live in the territory subject to inundation have learned to look to the railroads that serve them, not only for assistance in protecting the land from floods, but for means of escape after the levees have broken. In almost every fight to save the levees the railroad forces have been found doing their part, and in many cases bearing the brunt of the battle, as the majority of those who are employed on the railroads of the valley are veteran flood fighters with years of experience gained in battling the forces of the river. The people residing adjacent to the levee usually find refuge on the unbroken portion to wait for boats, while those farther removed from the levee hurry to the railroad, with the knowledge that rescue trains will come to their relief.

As soon as news of breaks in levees is received, special trains are rushed to the flooded territory for rescue

work, many of them operating under hazardous conditions. The comparatively small loss of human life this year was due in no small part to the prompt rescue work of the railroads.

Some idea of the extent of the relief work may be gained from the fact that the Illinois Central alone spent $387,000 in such work. The railways operated more than 400 relief trains, some 5,000 carloads of provisions, boats and other supplies were transported, practically all free of charge, and more than 4,000 box cars were supplied as living quarters for refugees, many of



**St. Louis-San Francisco Track Five Miles North of Cape Girardeau, Mo., During the Flood**

which were occupied over long periods, in some cases more than 60 days.

The railways were also active in the matter of sanitation and disease prevention, turning their hospital staffs over to this work. They supplied pure drinking water in large quantities, using tank cars for this purpose. In addition, nearly 2,000,000 sacks and the services of thousands of employees were furnished for levee protection.

### Protective Measures and Track Restoration

It was apparent early in April, 1927, that railroads adjacent to the Mississippi and its tributaries were faced with the probability of severe flood conditions, and precautions were taken to protect their property.

From the standpoint of railroad operation, combating high water is divided into three general phases:

(1) Precautions to prevent overflow and to minimize the damage of tracks and structures when such overflow occurs.

(2) Efforts directed to remove inhabitants and their personal property and livestock from the overflow area.

(3) Restoring track and bridges to service and reestablishing and opening the lines to traffic in the shortest possible time.

The probability and extent of high-water stages were anticipated in advance, and the flood crest date closely approximated from the past performances of rivers and streams, and the predictions issued by the U. S. Weather Bureau, except where crevasses resulted in the inundation of territory behind levees.

Where there was a probability that the territory would be overflowed all material possible was removed from the overflow area and stored on high ground. Track gangs were recruited to full strength and additional gangs held in readiness to move to the inundated area. Cinders, gravel and other ballast and filling materials were assembled in readiness for use. Large quantities of sand bags were purchased, and in addition to those applied at once for protecting the ends of bridges, topping levees and protecting railroad embankment from wash, filled bags were stored in convenient locations. Track and bridge decks were anchored wherever possible to prevent them from being washed out of line. The measures adopted by the individual railways follow in detail:

### Illinois Central

At Vicksburg, the Yazoo & Mississippi Valley yards and passenger facilities, as well as the wholesale and manufacturing districts, are at the base of the hills immediately behind a seawall and levees. While the seawall successfully withstood a stage of 56.7, which was 3.7 feet higher than any previous record, the area behind the seawall was constantly threatened with inundation by water from torrential rains and from sand boils and abandoned sewers coming in beneath the wall which had to be pumped out. It was necessary to "sack" along the top of the levee for a considerable distance at each end of the seawall, in addition to using a large number of sacks for protection against sand boils and abandoned drains. A total of more than 618,000 bags was used at Vicksburg alone in keeping the water out. In order to take care of the enormous amount of storm water and water from sand boils, abandoned sewers, etc., it was necessary to maintain a total of 23 pumping units, with capacities ranging from 250 to 10,000 gal. per min.

Just across the river from Vicksburg, 150,000 bags were used in the construction of a 2,300-ft. wall of sacks to an average height of approximately seven feet, this wall extending from the transfer incline to the main levee for the purpose of protecting the incline and track approaches from the river current.

At Yazoo City, 98,000 sand bags were used to protect the freighthouse and passenger station and public facilities from the approaching back water from the Yazoo river. In spite of the numerous boils and broken sewers, together with the break in the protection levee which flooded and scattered 11,000 bales of cotton, the passenger and freight facilities were successfully protected from the water and service was maintained throughout the duration of the flood.

One of the largest flood prevention works ever undertaken by a railroad was carried out at Baton Rouge. The levee was elevated by railroad forces to a maximum of 10 ft. in places, with an average raise of more than five feet. The levee was originally built to an elevation of 45 ft., while the crest of the 1927 flood was 47.7 feet, and at the time the work was being done a crest of 49 ft. was predicted. At this point the double-track main line occupies the levee. The elevation of the tracks ranged from 39.8 ft. to 44 ft. Therefore, it was necessary to raise this double-track roadbed, for a distance of two miles, from five to ten feet. Fascining on the river side was necessary for the entire distance of two miles to prevent wave wash and to hold the sand bags in place. It was necessary to reinforce this levee heavily with sand bags and about 400,000 bags were placed on the sides of the fill. The track elevation was done entirely with cementing bank-run gravel and without interruption to traffic. The work required nearly half a million bags, 45,000 ft. of lumber and 1,925 cars of gravel.

On this same division the entire maintenance force from Baton Rouge to New Orleans was placed at the disposal of the government on April 15 for the purpose

of protecting the east bank levee system from Baton Rouge to New Orleans, a force of from 300 to 500 men working on weak spots in the levees, only skeleton section gangs being retained on the railroad.

At Grenada, La., railroad forces working under the direction of government engineers and in conjunction with the levee board forces, saved the levee after waves had washed away about two-thirds of it. After fascining on the crown at other places, similar action saved the east bank parishes from inundation. Due very largely to this work no breaks occurred in the levees on the east bank south of Baton Rouge.

The unprecedented stage of 56.3 at Cairo on April 18 created an extremely serious condition in that vicinity, as the river passed the former high stage of 54.7 on April 15, and continued above that stage until April 25, during which time there was constant danger of levee failures, which would have flooded the city of Cairo and the industrial district north of the city, as well as the railroads in this vicinity. The overflow from the Mississippi flooded all of the territory from the Mississippi to the Ohio, bounded on the south by Cache River levee and on the north by the high ground north and west of Mounds shops.

The water overtopped the protection levee west of Mounds, completely flooding the shops and yards, and the main line of the Illinois Central was endangered from Mounds south to the Cache river by water flowing over the track. It was necessary to sack this track to prevent wash for a distance of about two miles, and in addition to the work of placing bags and protecting the railroad company's property, work trains with men and materials were furnished the city of Cairo and Cairo drainage district authorities for the protection of the Cache and Mississippi levees. A determined effort was made to keep the water out of Mounds yard by topping the protection levee on the west side of the yard with sand bags. In spite of all efforts, however, the water topped this levee a little after midnight on April 16. A large emergency pumping station was installed and the yard pumped out when the water had receded to the top of the protection levee, thus restoring the yard to service several days earlier than could have been effected without the pumps. A total of 556 cars containing 349,628 sacks filled with sand and earth and 175 cars of filling material were shipped to Mounds and Cairo for this protection work.

On the Vicksburg Route division the water was from 3 to 4 ft. deep over the track and accompanied by a heavy current. It was necessary to crib four miles of track, most of which was done under water, 2,173 linear feet of temporary trestles were driven and 252 linear feet of permanent bridges rebuilt; 14 miles of track was reballasted, relined and resurfaced. The restoration of this line was completed under extremely difficult conditions, much of the work being done under water and against a heavy current. In many cases the track was washing out as the work was carried on. For example, where the track was originally cribbed on Mile 4, the heavy current and rising water made it necessary to drive piling across the opening and before the bridge was made safe for traffic it had been driven three times, first with 17½ ft. piling, then with 30 ft. piling and finally with 50 ft. piling. Between Mile 9 and Mile 15 the track was washed off the fill for 4,000 ft. About two miles of this track was cribbed and two temporary bridges with a total of 196 bents driven, the work being done with the water from a few inches to three feet over the rail.

**Bridge Washed Out on Yazoo & Mississippi Valley Near Helm, Miss. The Water Was 50 ft. Deep Under This Bridge**

In repairing track under water, derrick cars were used for unloading material, which was rafted ahead and placed by men working in the water, often waist deep. In the reconstruction of the track through Grassie Lake swamp, where nearly five miles of track was repaired under water, two 12-in. by 12-in. timbers, 30 ft. long, were drifted together with ties and floated into position ahead of the track.

Boats equipped with outboard motors were used for towing the material. This facilitated the work as it was sometimes necessary to tow piling, stringers and ties for half a mile or more.

The work was carried on day and night. In order

to provide illumination, portable electric lighting systems were installed on rafts and flat cars.

### Louisiana & Arkansas

The tracks from Rhinehart, La., to Concordia Junction, 30.44 miles, were subject to overflow. In anticipation of the 1927 high water, this track was anchored by driving 2-in. by 4-in. wooden stakes 6 ft. long about 4½ ft. in the ground at every rail joint on the north side of the track, and then tying the north rail to the stakes with a No. 9 double-strand wire. Where necessary, the embankment was protected with sand bags to

**Missouri Pacific Washout at Saline River, Two Miles South of Benton, Ark.**

prevent washing and a thorough inspection made of the pile trestles, especially as to the anchoring of the deck to the piles.

### Missouri Pacific

Precautions to prevent overflow and to minimize damage were begun early in April in Illinois above Cairo and were continued as the flood moved down the river during April and May. In Illinois, patrols were established along public levees between Cora City and Gale. Low portions of levees and weak spots were strengthened with sand bags, which were handled from the land side of the levee by hand labor. At one point near Cora City a small break in the levee was repaired and a crevasse prevented by applying rip-rap unloaded from a barge in the river. By these methods the levees were held until crevasses occurred where roots of trees had grown underneath the levees and at other locations where the levees were overtopped for several miles.

As soon as levee failures became imminent extra patrols were established wherever it appeared that the main track would be submerged. Sacked sand and gravel were placed along the downstream sides of track embankment, rip-rap was placed at the ends of bridges and trestles, and wooden decks of bridges were anchored.

At Cairo a work train and 100 laborers were turned over to the city and the Cairo drainage district for about 10 days to handle sand bags to strengthen the levees, this being a part of a successful fight to hold the levees surrounding Cairo and the Cairo drainage district. In Missouri, special train service was provided to carry sand bags to the levees in Mississippi county and to transport national guardsmen between the levees north of Dorena crevasse.

In Arkansas, protective measures were taken along the Mississippi river levees, including the levees south of the Arkansas river to Pine Bluff, patrolling and emergency strengthening work being handled by levee districts, the Mississippi River Commission and the U. S. engineers.

Special patrols were established on the track wherever overflow was threatened. On account of the very rapid rise of streams, the breaking of levees unexpectedly, and many other unforeseen difficulties, little opportunity was afforded in many locations to prevent damage to railroad property. Stone rip-rap and bags filled with sand or gravel were placed on the downstream side of embankments and the track was anchored by means of stakes and wire for many miles through bottom land.

In Louisiana, similar preventive measures were taken. At several locations it was necessary to protect both sides of the roadbed with rip-rap or sand bags for the reason that overflow from streams on opposite sides of the tracks crossed in both directions at different times.

### St. Louis-San Francisco

The preventive and protection measures employed by this company during the floods were, in general, sandbagging and rip-rapping on the river side of embankments and the ballast slope to protect against wave wash, and where it was evident that water would go over the track embankment, the shoulder and ballast slope on the downstream side were protected as far as possible by rip-rap and sand bags. Also in many places rock and slag ballast was unloaded in the center of the track nearly to the height of the rail to prevent the track from washing. The track was restored as the water receded, generally by filling the smaller breaks with rip-rap and sand bags, and as soon as cars could be run over it this was filled in with crushed rock or slag ballast. Many of the larger breaks were crossed by pile trestles, some of which were filled after the water subsided, although many openings caused by the washouts have so far been maintained as emergency waterways.

### Gulf Coast Lines

This company co-operated with the Mississippi River Commission and local levee districts, by patrolling levees

**North Approach, Missouri Pacific. Ouchita River Bridge, One Mile North of Arkadelphia, Ark.**

immediately adjacent to its line, and by undertaking the maintenance of the levees by means of drainage and topping in advance of the flood crest. During the flood a considerable amount of this work was done, the railway having taken over the entire maintenance and protection of about 30 miles of levees on both sides of the Atchafalaya river, as well as a considerable section of the Mississippi river levee in the vicinity of the railway's incline and crossing at Anchorage, La. For this work the railway organized special levee gangs, estab-

lishing tent camps at some distance from the railway, arranging the necessary motor transportation for the movement of commissary supplies and material, and the furnishing of tools, levee sacks and other materials needed for the protection, topping and maintenance of the levees placed in the care of the railway. The railway also furnished special agents and armed guards for the purpose of patrolling levees in co-operation with local officers.

### Texas & Pacific

It was apparent early in April, 1927, that the Texas & Pacific was faced with the probability of severe flood conditions and precautions were taken to protect the property. Where there was a reasonable certainty that a section would be inundated, all material therein was moved to higher ground and sufficient forces assembled to protect bridge ends, anchor track and bridges and otherwise protect the property from any overflow damage.

Track gangs were increased in the Bougere section to 100 men to assist government forces of 150 men in raising three miles of low levee, which varied from three to five feet below the anticipated crest. In the Big Bend section on Bayou des Glaizes, the levee was from two to five feet below anticipated flood height. A stubborn but unsuccessful fight was waged here by local forces, assisted by 300 railway track laborers.

### Southern Pacific Lines

Between Bayou Sale and Berwick on the right bank of the Atchafalaya channel, 7.6 miles of track was raised 16 to 24 in. on stringers and ties in advance of the flood crest. This cribbed track section was reinforced with gravel and with sand bags where wave-wash was anticipated. Between Morgan City and Schriever, 2½ miles of track was blanketed with gravel without raising and was protected on the downstream slope with sand bags. This work was performed without interruption of traffic at a time when the line was carrying the traffic of all roads entering New Orleans from the West. With these precautions all of this traffic was handled during the flood period without interruptions and with no unusual delay. The flood stages actually reached here were somewhat lower than predicted. No water passed above the top of the rails east of Morgan City, and the track was raised, as described, west of Morgan City to give ample clearance above the maximum high water.

# Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended September 3 amounted to 1,117,069 cars, eclipsing the preceding week's total of 1,109,225 cars as the record to date this year. This was a decrease of 26,379 cars as compared with the corresponding week of last year and an increase of 14,284 as compared with 1925. Loadings of grain and grain products and of less-than-carload merchandise were heavier as compared with loadings in the corresponding week of 1926 but other commodity classifications continued to show decreases. Coal loading declined 6,600 cars and ore 13,380 from last year's totals. The Pocahontas, Southern and Southwestern districts again showed gains as compared with last year. The totals for other districts declined. The summary, as compiled by the Car Service Division of the American Railway Association is as follows:

**Revenue Freight Car Loading**

WEEK ENDED SATURDAY, SEPTEMBER 3, 1927

| Districts | 1927 | 1926 | 1925 |
|---|---|---|---|
| Eastern | 249,613 | 262,952 | 247,585 |
| Allegheny | 225,171 | 233,511 | 214,643 |
| Pocahontas | 64,616 | 60,044 | 57,533 |
| Southern | 160,763 | 156,031 | 159,686 |
| Northwestern | 175,436 | 179,039 | 176,604 |
| Central Western | 156,649 | 168,103 | 161,106 |
| Southwestern | 84,821 | 83,768 | 85,628 |
| Total Western Districts | 416,906 | 430,910 | 423,338 |
| Total, all roads | 1,117,069 | 1,143,448 | 1,102,785 |
| Commodities | | | |
| Grain and grain products | 60,433 | 55,692 | 56,108 |
| Live stock | 30,069 | 33,131 | 32,208 |
| Coal | 190,680 | 197,280 | 178,421 |
| Coke | 10,133 | 12,157 | 11,268 |
| Forest products | 69,387 | 71,774 | 71,528 |
| Ore | 61,423 | 74,803 | 59,461 |
| Mdse. L. C. L. | 267,257 | 266,691 | 270,603 |
| Miscellaneous | 427,687 | 431,920 | 423,188 |
| September 3 | 1,117,069 | 1,143,448 | 1,102,785 |
| August 27 | 1,109,225 | 1,128,563 | 1,124,438 |
| August 20 | 1,066,636 | 1,081,503 | 1,079,995 |
| August 13 | 1,049,280 | 1,102,660 | 1,064,476 |
| August 6 | 1,024,218 | 1,075,392 | 1,052,518 |
| Cumulative total, 36 weeks | 35,628,551 | 35,754,476 | 34,697,893 |

The freight car surplus for the period ended August 31 averaged 214,985 cars, as compared with 238,655 cars August 23. The total included 123,901 box cars, 53,204 coal cars, 18,424 stock cars and 12,693 refrigerator cars.

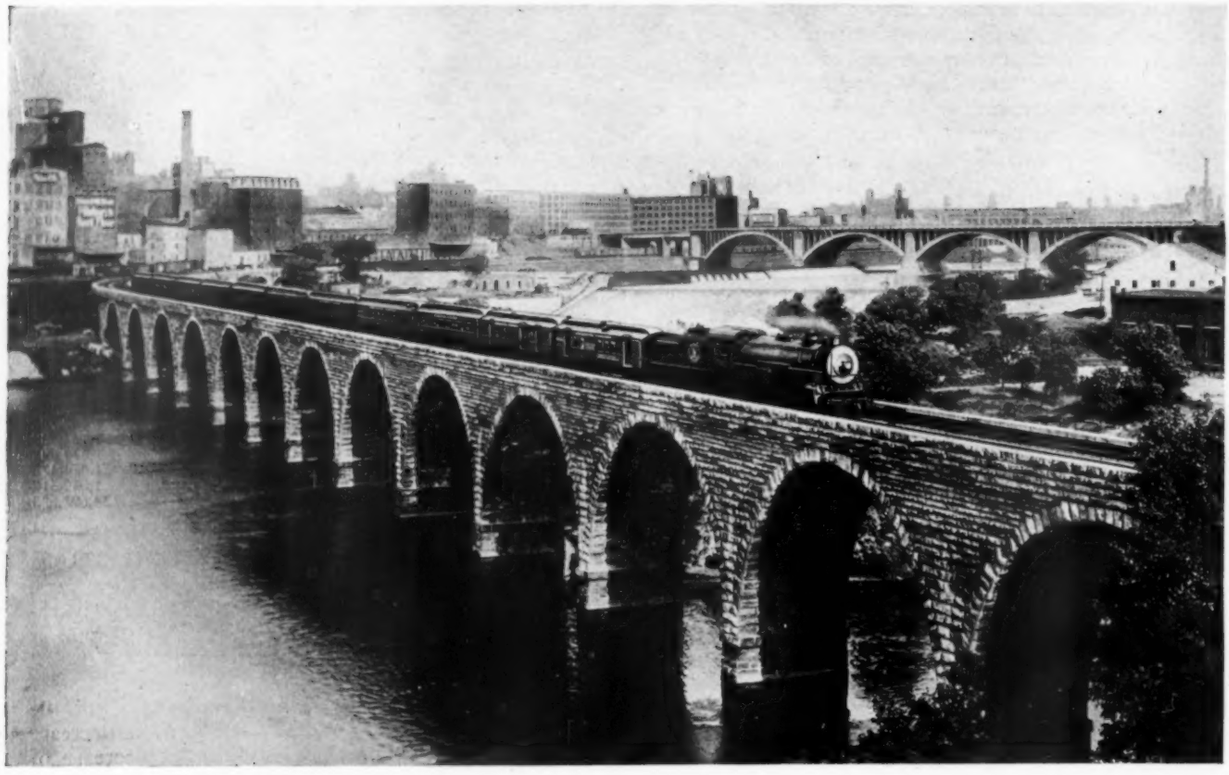
### Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended September 3 totalled 63,260 cars, a decrease of 799 cars from the previous week and a decrease of 2,994 cars from the same week last year.

| | Total for Canada | | | Cumulative totals to date | |
|---|---|---|---|---|---|
| Commodities | Sept. 3, 1927 | Aug. 27, 1927 | Sept. 4, 1926 | 1927 | 1926 |
| Grain and grain products | 4,356 | 3,835 | 8,754 | 228,524 | 224,409 |
| Live stock | 2,660 | 2,910 | 2,381 | 70,712 | 70,970 |
| Coal | 7,366 | 7,151 | 7,000 | 228,783 | 184,950 |
| Coke | 363 | 337 | 227 | 10,943 | 12,682 |
| Lumber | 4,167 | 4,465 | 3,824 | 132,958 | 128,433 |
| Pulpwood | 2,070 | 1,940 | 1,894 | 119,029 | 99,872 |
| Pulp and paper | 1,932 | 2,007 | 2,141 | 77,709 | 85,046 |
| Other forest products | 3,022 | 2,744 | 2,749 | 107,024 | 110,018 |
| Ore | 2,152 | 2,018 | 2,094 | 56,598 | 58,775 |
| Merchandise, L.C.L. | 18,229 | 18,520 | 18,253 | 596,821 | 566,024 |
| Miscellaneous | 16,943 | 18,132 | 16,937 | 504,168 | 485,768 |
| Total cars loaded | 63,260 | 64,059 | 66,254 | 2,133,269 | 2,026,947 |
| Total cars received from connections | 37,459 | 38,172 | 38,310 | 1,324,828 | 1,303,180 |

*Photo Rudolf Kreutzer*

**Dresden-Leipzig Train at Dresden, Germany**



*Oriental Limited Crossing the Mississippi at Minneapolis*

# Great Northern Expects Big Year

## *Most prosperous of Northwestern carriers should exceed* 1926 *per share earnings of* $10.42 *as result of improved agricultural conditions*

THE Great Northern is at the moment the most promising from an earnings standpoint of the Northwestern railroads. In 1926, it reported earnings per share of $10.42 as against $8.47 per share reported by the Northern Pacific or earnings of $6.92 per share on common stock reported by the Chicago & North Western. The Great Northern's earnings for the first six months of 1927 were approximately the same as those for the first six months of 1926. However, in 1926 the Great Northern earned less than a quarter of its year's net railway operating income in the first six months and the other three-quarters in the second six months. From present appearances the second half of 1927 will be an unusually favorable one for the road. This will follow chiefly because of the improved crop conditions which are much better than they have been for some years and in sharp contrast with the adverse conditions ruling a year ago.

President Ralph Rudd was recently quoted as saying "Officials of the Great Northern have reached the conclusion that this will be one of the best years in point of agricultural products we have ever experienced. We estimate that farm income in Minnesota, North Dakota, South Dakota and Montana this year will be $250,000,000 more than last year. The improved purchasing power of the farmers of the Northwest as a result of the 1927 crop will be felt in the larger movement of manufactured goods, including lumber, into the territory."

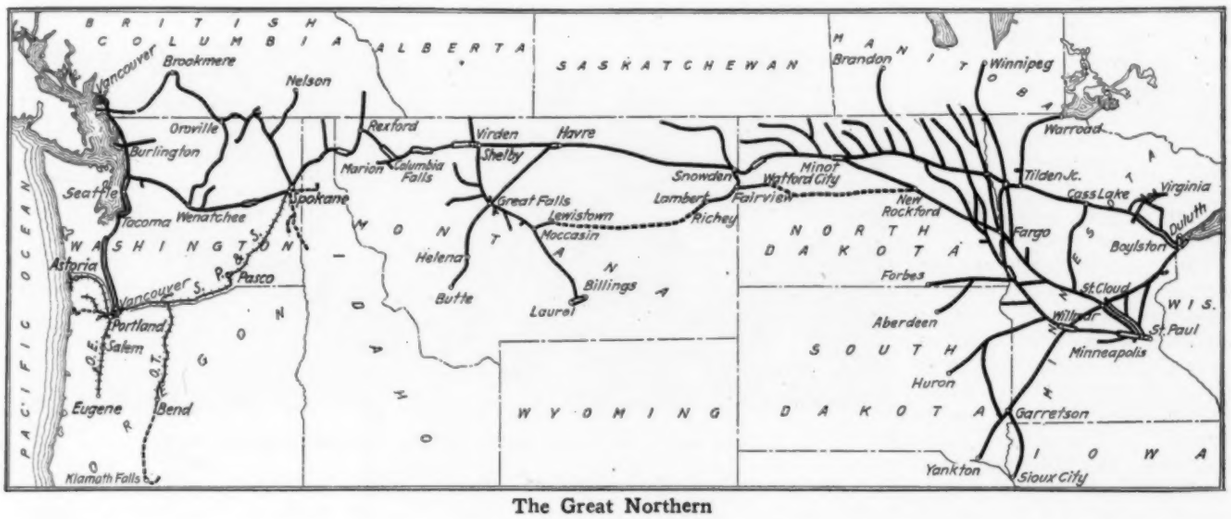
### Stock Has Reached 103⅞

The price of Great Northern preferred stock, which inasmuch as there is no other stock issue is equivalent to common stock, has had a range thus far in 1927 between 79⅝ on January 4 and 103⅞ recently. This issue formerly sold pretty much on a parity with the common stock of Northern Pacific. During much of 1927, however, improved Great Northern earnings have resulted in a difference of about two points in its favor and more recently the difference has become even greater. This difference in price prevails in spite of the fact that the merger plan, the application for approval of which has recently been presented to the Interstate Commerce Commission, calls for exchange of stock of the proposed Great Northern Pacific on a par for par basis for the stock of the two present companies.

### Arguments for Merger

The various statements that have been issued regarding the merger of the two companies have supplied much interesting data regarding their relative positions. One interesting fact is that there is common ownership of stock as between the two properties amount-

ing to 60 per cent. Another interesting feature was a comparison with pre-war earnings in which it was pointed out that neither the Great Northern nor the Northern Pacific had had increases in rates comparable with those of the eastern roads or increases in traffic comparable with those of the southern roads, and that it would become necessary partly to compensate therefor by economies which it was hoped that the merger would make possible. It was also pointed out that common control would permit a more unified policy with reference to the jointly controlled properties of the two lines which include the Chicago, Burlington & Quincy, its subsidiary, the Colorado & Southern, the Spokane, Portland & Seattle and its subsidiary, the Oregon Trunk. Of particular interest among the arguments that have been made in favor of the merger plan is that the two railroads are only partly competitive. The Great Northern has 57 per cent of its mileage east of the North Dakota-Montana state line, while in the case of the Northern Pacific 59 per cent of its mileage lies to the west thereof. While they compete actively for through business, each has a large non-competitive local territory.




The Great Northern

## Lumber Possibilities

The Great Northern's mileage totals 8,164. This mileage is about 1,900 greater than that of the Northern Pacific and inasmuch as both have lines from Duluth and St. Paul to Puget Sound, the difference will be found in the Great Northern's more extensive branch line development, chiefly in North Dakota and Minnesota. The Great Northern's traffic in 1926 was divided roughly in percentages of total revenue tons as follows: Products of agriculture, 15 per cent; animals and products, 2 per cent; products of mines, 60 per cent; products of forests, 12 per cent; manufactures and miscellaneous, 11 per cent. However, a division on the basis of gross revenues would be about as follows: Products of agriculture, 27 per cent; animals and products, 5 per cent; products of mines, 21 per cent; products of forests, 17 per cent; manufactures and miscellaneous, 30 per cent.

It will be observed that the products of forests yield 12 per cent of the revenue tons and 17 per cent of the gross revenues. In the case of the Northern Pacific, products of forests were 38 per cent of total tonnage and in the case of the Chicago, Milwaukee & St. Paul, 19 per cent.

The fact that the Great Northern has a smaller proportion of products of forests than its two neighbors is of interest from the standpoint of past performance and of even greater interest from the standpoint of future

### Table I—Great Northern, Operating Results, Selected Items, 1916 to 1926

| | June 30, 1916 | 1920 | 1921 | 1922 | 1923 | 1924 | 1925 | 1926 |
|---|---|---|---|---|---|---|---|---|
| Mileage | 8,051 | 8,174 | 8,163 | 8,261 | 8,254 | 8,251 | 8,242 | 8,188 |
| Total operating revenues | $81,233,092 | $124,897,865 | $101,317,204 | $103,452,937 | $120,077,772 | $110,243,104 | $114,924,960 | $117,383,909 |
| Total operating expenses | 43,862,972 | 113,947,115 | 80,496,912 | 79,636,038 | 86,750,523 | 75,212,058 | 75,827,288 | 75,285,464 |
| Net operating revenues | 37,370,120 | 10,950,750 | 20,820,291 | 23,816,899 | 33,327,248 | 35,031,046 | 39,097,672 | 42,098,445 |
| Railway tax accruals | 5,130,379 | 10,050,265 | 8,291,224 | 8,097,725 | 9,113,227 | 10,257,741 | 9,801,945 | 9,699,807 |
| Railway operating income | 32,234,834 | 869,535 | 12,480,988 | 15,703,640 | 24,193,040 | 24,761,037 | 29,287,882 | 32,383,299 |
| Equipment rents, net Dr. | 99,616 | Cr. 2,510,965 | Cr. 739,997 | Cr. 1,799,023 | Cr. 806,631 | 304,269 | 726,135 | 808,499 |
| Joint facility rents, net Dr. | 175,673 | 362,853 | 354,574 | 226,065 | 267,679 | 255,481 | 285,564 | 294,372 |
| Net railway operating income | 31,959,545 | 3,017,647 | 12,866,411 | 17,276,598 | 24,731,992 | 24,201,287 | 28,276,183 | 31,280,429 |
| Non-operating income | 6,533,428 | 28,470,105 | 31,731,122 | 10,487,006 | 10,313,261 | 11,653,877 | 11,428,248 | 13,175,670 |
| Gross income | 38,492,973 | 31,487,752* | 44,597,533 | 27,763,604 | 35,045,252 | 35,855,165 | 39,704,431 | 44,456,099 |
| Deductions from gross income | 10,867,804 | 12,170,156 | 16,127,607 | 16,897,932 | 16,977,305 | 17,913,564 | 18,269,035 | 18,512,842 |
| Net income | 27,625,169 | 19,317,596 | 28,469,926 | 10,865,672 | 18,067,947 | 17,841,600 | 21,435,396 | 25,943,258 |
| Dividends | 17,456,390 | 17,462,916 | 17,462,973 | 13,097,264 | 12,473,605 | 12,473,617 | 12,369,145 | 12,445,855 |
| Surplus | 2,311,582 | 1,828,996 | 10,982,668 | 2,252,112 | 355,498 | 5,459,698 | 9,059,960 | 13,491,891 |
| Earnings per share on stock | 11.07 | 7.74 | 11.41 | 4.36 | 7.24 | 7.15 | 8.61 | 10.43 |
| Revenue ton-miles (thousands) | 7,809,817 | 8,518,841 | 5,740,921 | 6,882,465 | 8,754,273 | 8,093,136 | 8,517,914 | 8,902,970 |
| Revenue passenger miles (thousands) | 601,257 | 685,005 | 478,267 | 450,053 | 460,208 | 422,372 | 441,499 | 409,510 |
| Revenue per ton-mile (cents) | 0.770 | 1.054 | 1.301 | 1.134 | 1.070 | 1.064 | 1.058 | 1.048 |
| Tonnage of iron ore | 10,347,469 | 14,755,241 | 5,048,120 | 11,175,315 | 17,676,007 | 13,539,021 | 14,804,347 | 16,427,072 |
| Per cent ore of total tonnage | 35.8 | 44.8 | 25.8 | 40.7 | 48.6 | 42.8 | 44.2 | 46 8 |
| Transportation ratio | 27.4 | 44.6 | 40.0 | 40.8 | 37.6 | 35.4 | 33.4 | 31.8 |
| Operating ratio | 54.6 | 91.2 | 79.5 | 77.0 | 72.2 | 68.2 | 66.0 | 64.1 |
| Per cent of net railway operating income to total operating revenues | 39.3 | 3.4 | 12.7 | 16.7 | 20.6 | 21.9 | 24.6 | 26.6 |

*Includes standard return for two months and guaranty for six months. Standard return for operations during federal control was $28,666,681.

possibilities. Lumber has been one of those commodities which have tended to move in great volume via the Panama Canal, and the fact that the Great Northern has had a small proportion of such traffic means that it has to that extent suffered less from Panama Canal competition than its neighbors. The Great Northern in the past few years has been making a special effort to realize on the fact that on its mileage east of the Montana-North Dakota state line, it has one of the largest non-competitive distributing territories of almost any railroad. On lumber more particularly, that part of this territory west of the Red river can be reached economically only by a long haul from western points. This territory grows little lumber of its own and it is a district which the Great Northern is particularly fitted to supply with that commodity entirely without danger of water competition.

The Great Northern has been trying for some time to build up a larger traffic in lumber. It has a point interest with the Northern Pacific in the Spokane, Portland & Seattle. The latter company planned a line some years ago, from the Columbia river south through central Oregon to the Klamath Lake region, which line it completed only as far as Bend. Various efforts have been made recently to carry out the completion of the line to Klamath Falls as originally intended but the Oregon Trunk has met strong opposition from the Southern Pacific which serves the Klamath Basin by means of its Natron cut-off. The Interstate Commerce Commission recently authorized the Oregon Trunk to complete its line on the basis of effecting a trackage agreement with the Southern Pacific for the use of a portion of the latter's Natron cut-off, but the Oregon Trunk and the Southern Pacific were unable to come to terms whereupon the commission authorized the Oregon Trunk to complete the line. A more recent development in the complicated situation, however, has been a proposal on the part of the Great Northern to take over the Oregon Trunk's authorization and build the line south from Bend itself. In connection therewith subject to the approval of Interstate Commerce Commission it has already acquired the Shelvin-Hixon railroad, which extends 23.5 miles south from Bend. It has agreed to enter into an arrangement with the Southern Pacific for the use of the latter's Natron cut-off between Paunina and Klamath Falls and will acquire from the Southern Pacific a half interest in the Oregon, California & Eastern which gives access to lumber territory in the Klamath Lake region. At the same time the Great Northern has also proposed to acquire trackage rights over the Spokane, Portland & Seattle and the Oregon Trunk to the new line which it will build south of Bend, thereby giving the Great Northern direct entrance to the lumber territory. This development would seem to be of particular importance from the standpoint of the Great Northern's future welfare. It will open up an extremely extensive lumber area on which the Great Northern will have a long haul to St. Paul and Chicago and at the same time it will make available a large tonnage of lumber which is needed to supply its own distributing territory. The willingness to make an agreement with the Southern Pacific is probably occasioned by knowledge that the lumber interests of the Northwest are tending towards large scale operations and prefer to have access to two or, if possible, three lines of railroad. Estimates have been made that there is enough lumber in the Klamath Basin to yield 480 million dollars in revenues to the railroads that reach it.

Ore Boat Loading at Great Northern Docks, Superior, Wis.

**Great Northern**

**Table II—Comparison of Selected Freight Operating Statistics**

| | 1926 | 1920 | Per cent of change Inc. | Dec. |
|---|---|---|---|---|
| Mileage operated | 8,188 | 8,174 | .2 | ... |
| Gross ton miles (thousands) | 21,729,066 | 19,252,778 | 12.9 | ... |
| Net ton-miles (thousands) | 9,993,941 | 9,565,464 | 4.5 | ... |
| Freight train-miles (thousands) | 10,198 | 12,313 | ... | 17.2 |
| Freight locomotive-miles (thousands) | 11,166 | 13,279 | ... | 15.9 |
| Freight car-miles (thousands) | 557,015 | 495,530 | 12.4 | ... |
| Freight train-hours | 881,351 | 1,198,760 | ... | 26.5 |
| Tons of coal consumed | 1,535,872 | 1,926,411 | ... | 20.3 |
| Car-miles per day | 27.9 | 28.4 | ... | 1.8 |
| Net tons per loaded car | 27.8 | 28.4 | ... | 2.1 |
| Per cent loaded to total car-miles | 64.6 | 67.9 | ... | 3.3 |
| Net ton-miles per car day | 500 | 548 | ... | 8.8 |
| Freight cars per train | 55.6 | 41.2 | 35.0 | ... |
| Gross tons per train | 2,131 | 1,564 | 36.3 | ... |
| Net tons per train | 980 | 777 | 26.1 | ... |
| Train speed, miles per train-hour | 11.6 | 10.3 | 12.6 | ... |
| Gross ton-miles per train-hour | 24,654 | 16,061 | 53.5 | ... |
| Net ton-miles per train-hour | 11,339 | 7,979 | 42.1 | ... |
| Lb. coal per 1,000 gross ton-miles | 128 | ..... | ... | ... |
| Loco.-miles per loco.-day | 42.3 | 50.5 | ... | 16.2 |
| Per cent freight locos. unserviceable | 19.5 | 29.3 | ... | 9.8 |
| Per cent freight cars unserviceable | 7.3 | 8.1 | ... | 0.8 |

## Iron Ore

There is a question in analyzing Great Northern operations as to how much the railroad gains from its ore tonnage. Unquestionably, it gains very greatly even though it is true that while products of mines, largely iron ore, constitute 60 per cent of its total tonnage, they only yield 21 per cent of the total revenue. The fact is that while since 1916, as previously noted, the Great Northern has had an increase of 14 per cent in its revenue ton-miles, it has had an increase of 21 per cent in its revenue tons and of no less than 59 per cent in its iron ore traffic. The increase in the tonnage of iron ore was six million tons and this was also approximately the increase in total revenue tonnage. In 1926, the tonnage of iron ore totaled 16,427,072, whereas the tonnage in the fiscal year ended June 30, 1916, was 10,347,469. In 1916, the iron ore made up 36 per cent of the total revenue tonnage whereas in 1926 it was 46.8 per cent. The heaviest year the Great Northern ever had from the standpoint of its ore tonnage was in 1923 when the ton-

nage was 17,676,007 or 48.6 per cent of the total tonnage. It would appear that the 1927 ore movement will approximate that of 1926 and, therefore, will be slightly less than in 1923. This iron ore traffic originates in the Missabe range in northern Minnesota lying about 125 miles from Superior, Wis. It moves only while the lakes are open and varies somewhat from year to year with the varying prosperity of the steel industry. The variation, however, is considerably less than that of agriculture.

### 160-Car Trains

The Great Northern handles this ore in an extremely interesting manner. The ore is assembled at Kelly Lake yard about 110 miles from Allouez yard at Superior, Wis. For the movement from Kelly Lake yard to Allouez, the Great Northern is using some converted simple articulated locomotives with a tractive effort of 100,000 lb. The scheme of operation is for a locomotive to leave Allouez with about 160 empty ore cars totaling about 3,000 gross tons. At Kelly Lake it will pick up as many loaded cars, gross tonnage averaging about 12,500. The grade is in favor of the loaded movement. The round trip of the locomotive from Allouez to Kelly Lake and back has now been speeded up so that it takes but an average of 13 hours. The effect of this operation on the road's statistics of gross tons per train and gross ton-miles per freight train-hour can be readily appreciated.

The figures previously noted show that products of agriculture constitute 15 per cent of the total revenue tons but yield 27 per cent of the revenue. It will, of course, be apparent that of equal importance with the revenue yielded by the agricultural products is the revenue yielded as a result of the buying power of the agricultural districts. This factor has already been discussed, but it is worth further comment as being one of the leading factors that promise improvement for the railroad, both in the latter part of 1927 and the early months of 1928.

### Economical Maintenance

The Great Northern has always been famous from the standpoint of its low costs of operation. In 1926 it had a transportation ratio of but 31.8 per cent, an operating ratio of but 64.1 and it succeeded in carrying 26.7 per cent of its gross revenues to net railway operating income.

In spite of these remarkable figures the road still has some way to go before it can rival the record made in the year ended June 30, 1916, when its transportation ratio was only 27.4, its operating ratio but 54.0 and its per cent of net railway operating income to total operating revenues, 39.3. The explanation of this lies in the fact that the increase in the rates which has taken place since 1916—36 per cent—has not been entirely sufficient to take care of the increased costs of operation which have developed in the intervening period.

It is not difficult to explain the Great Northern's favorable ratios of operation for 1926. The road has the advantage of being the northernmost transcontinental carrier within the borders of the United States, with the result, considering the geography of the country, that it has the lowest grade line across the Rockies. It crosses the continental divide in Montana at an elevation of but 5,200 ft. and crosses the Cascades by means of its new Cascade tunnel at an elevation of but 2,900 ft., to surmount which, in the latter case, it is further assisted by electrification. The road has a maximum grade across the Rockies of 1 per cent westbound and 1 per cent eastbound, with 1.8 per cent helper grade eastbound for 14 miles. Between Minot, N. D., and the Missouri river, it has a .7 per cent grade in both directions and outside of that it is favored with an 0.3 per cent line. The road has the advantage of being able to purchase a large proportion of its ties locally in Montana, Idaho and Washington. Furthermore, it uses a tie 7 in. by 9 in., 8 ft. 6 in. long in size, which assists in procuring longer tie wear. All of the ties put in track are treated and about one-half of those already in track are treated. The road uses principally washed gravel ballast. This is picked up locally which helps keep down its costs. On the main line, the depth of the ballast is 2 ft. The road has recently adopted 110 lb. rail as standard on tangents and 130-lb. on curves of 6 deg. or sharper. The use of 100-lb. rail, of which 190 miles has been laid, has been discontinued. With that and the 110-lb. and 130-lb. rail now laid, there is about 400 miles of track laid with heavier than 90-lb. and 30,000 tons of the heavy rail have already been purchased for next year.

Many Glacier Hotel, Lake McDermott, Glacier National Park

The Great Northern unquestionably has improved its track very greatly in recent years. The fact that such a large percentage of its total mileage is east of the Rocky Mountains in a prairie country where the grades are flat and the track is comparatively straight, together with the favorable situation with respect to tie supply and ballast, constitute an inherent advantage of the Great Northern in maintaining its tracks at low cost.

The road is now completely block signaled from St. Paul to Seattle.

### Low Ratios of Operation

The effect of the Great Northern's economical maintenance conditions is shown by the fact that in 1926 it spent only 12 cents out of every dollar of gross revenues

for maintenance of way. The other ratios of operation are given in the following table:

**Per Cent of Total Operating Revenues, 1926**

| | Great Northern | Northern Pacific | C. B. & Q. | North-western Region | Western District |
|---|---|---|---|---|---|
| Maintenance of way..... | 12.0 | 12.6 | 14.9 | 14.1 | 14.3 |
| Maintenance of equipment.. | 15.2 | 17.9 | 18.7 | 19.0 | 18.6 |
| Transportation ..... | 31.8 | 33.2 | 33.7 | 35.6 | 33.5 |
| Total expenses ..... | 64.1 | 70.1 | 72.2 | 73.9 | 72.0 |
| Ratio of net railway operating income ..... | 26.7 | 24.9 | 18.6 | 18.0 | 19.4 |

It may be remarked, with reference to the 15.2 per cent maintenance of equipment ratio, that the Great Northern is now charging 2 per cent for depreciation of equipment whereas the Northern Pacific, which shows a maintenance of equipment ratio of 17.9 per cent, is charging 4 per cent. It is possible that if the Great Northern made the same charges for equipment depreciation as the Northern Pacific, the ratio of net operating income to total operating revenues would be nearer alike for the two roads than it actually was during the past year.

On the other hand mention should also be made of the fact that Great Northern is using treated ties while the Northern Pacific is not, which item probably offsets the higher equipment depreciation of the Northern Pacific. In five years more, tie renewals on the Great Northern will be decreased by nearly 50 per cent and, as that item constitutes over two million dollars a year, about a million dollars per year will be saved.

### 53.5 Per Cent Increase in Gross Ton-Miles per Train-Hour

Table II with this article gives the usual comparison of operating statistics as between the year 1926 and 1920. It will be noted that in 1926, the road handled 12.9 per cent more gross ton-miles than in 1920 with 17.2 per cent less freight train-miles, 26.5 per cent less freight train-hours and 20.3 per cent less fuel. The most striking thing in the table, unquestionably, is the improvement made in train loading and train speed which has been sufficient to effect an increase of 53.5 per cent in the gross ton-miles per train-hour. The actual figure of gross ton-miles per train-hour, 24,654, is exceeded by many railroads, which follows because the Great Northern has to average out the high figure produced by its ore traffic with the low figures produced on its extensive branches into the agricultural districts. However, it is doubtful if very many railroads have shown such a remarkable increase as 53.5 per cent in this six-year period.

# Master Painters Meet At Louisville

A REGISTRATION of approximately 200 members and guests marked the opening day of the sixth annual meeting of the Equipment Painting Section, Mechanical Division, American Railway Association, which was held at the Hotel Kentucky, Louisville, Ky., September 13, 14 and 15, 1927. This meeting also marks the fifty-seventh anniversary of the organization of the former Master Car and Locomotive Painters' Association, which was founded in Boston, Mass., in 1870.

During the three-day session three individual papers were presented in addition to six committee reports. The papers were: Fifty Years in a Railway Paint Shop, by W. O. Quest, past president, 1892; Rust, by D. Warner, foreman painter, Canadian Pacific, and Relations Between Master Painter and Chemist on Railroads, by B. E. Miller, master painter, Delaware, Lackawanna & Eastern. The committee reports were as follows: Tests, Standard-Car and Locomotive, Shop Construction and Equipment, Maintenance and Care of Paint and Varnish at Terminals, New Developments in Equipment Painting with Economies Involved and Ornamentation of Cars and Locomotives.

Mr. Quest, in reviewing 50 years of railroad paint shop work told of the period of increasing revenues of the railroads after the Civil War with the result that there was a great deal of competition between the individual roads in the matter of decoration of passenger cars and locomotives. The interiors of passenger cars were elaborately finished in costly woods that were expensively hard varnished and hand polished. Locomotives were resplendent with polished brass fittings, and driving wheels and trucks were striped in colors and gold designs which, in many instances, required the use of from 90 to 100 books of gold leaf in order to decorate a single locomotive. After the financial panic of 1873 there was a drastic retrenchment in the matter of maintaining equipment, with the result that the decorations were the first to go. In the matter of shop work Mr. Quest reviewed the materials and methods in use years ago and brought out the fact that it then required from 35 to 60 days for the original finishing or burning off and repainting of a first-class passenger locomotive.

In the report of Shop Construction and Equipment cognizance was taken of the fact that the increasing use of lacquer has brought about the requirement of somewhat different shop facilities. In the discussion of this report the question was raised as to whether or not the actual fire hazard, about which there has been much comment, attendant upon the use of lacquer is actually as serious as at first seemed possible. One member ventured the inquiry as to whether or not those in attendance had personal knowledge of any fire or explosion that might be directly attributed to the use of lacquer. Aside from a serious explosion that recently occurred in an automobile body plant none of the members seemed to have come in contact with any accidents in railroad shops regardless of the fact that lacquer is now quite widely used—in the case of one road the greater part of its passenger equipment being finished with this material. The consensus of opinion seemed to be that the prime requisite in the use of lacquer is for ordinary care and absolute cleanliness about the shop. Also that if the same precautions are taken in a shop as in the use of other finishing materials or in the use of varnish remover there need be no concern as to the fire hazard.

In the discussion of the report on the Care of Paint and Varnish at Terminals, the appendix to which contained a description of the operation of a car washing machine recently installed by the Baltimore & Ohio at Pittsburgh, Pa., the question was raised as to whether or not the action of the fiber brushes embodied in this machine had any detrimental effect on the exterior finish of passenger cars. One of the members who had investigated this matter reported that while the washing machine had been in operation only a short time there did not appear to be anything about its use that could result in harm to the finish.

The following officers were elected to serve for the year 1928: Chairman, L. B. Jensen, general foreman, passenger car department, Chicago, Milwaukee & St. Paul, Milwaukee, Wis.; first vice-chairman, H. C. Allehoff, foreman painter, Oregon-Washington Railroad and Navigation Company, Portland, Ore., and second vice-chairman, D. C. Sherwood, foreman painter, New York Central, West Albany, N. Y.

The association voted to hold next year's convention at Montreal.

# Signal Section Meets in Montreal

*Economics of signaling, highway crossing protection, and standard indications among subjects discussed*

THE Signal Section, American Railway Association, held its regular stated meeting at the Mount Royal Hotel, Montreal, Que., on September 13, 14 and 15, with an attendance of 360 members and 195 guests, the largest Fall meeting in the history of the association. C. H. Tillet, signal engineer, Canadian National, Central Region, chairman of the section, presided at the meeting, the program including the reports of nine regular committees and also several special addresses.

The meeting was opened with an address of welcome to the members and guests by Mederic Martin, Mayor of Montreal, who explained that the Dominion of Canada was composed of two peoples, the English and the French, in happy accord to the good of all and that this brotherhood of mankind was a factor in the promotion of good will in the relations with the neighbors in the United States.

Sir Henry Thornton, chairman and president of the Canadian National Railways, gave a short address of welcome in which he pointed out that the work of the signal engineers should be to provide not only safety but also to facilitate traffic by increasing track capacity. The present track facilities, he said, would be inadequate to handle the business of today without signaling, and further capacity can be secured by the extension of signal equipment.

R. H. Aishton, president of the American Railway Association, in his brief address pointed out that the key to the successful railroad transportation of today and the accompanying public good-will was the faster and better movement of traffic. As an example of what signaling is doing to assist in this increased efficiency he mentioned that one southern road had equipped a single track division with automatic block signaling which had so facilitated train movements as to increase the average speed of freight trains from 13.5 to 16 m.p.h.

In discussing the Bible text "Beware of the day when all men speak well of thee," Mr. Aishton cautioned against being too satisfied with our success. He said that although the signal engineers were doing well for the railroads, the possibilities of signaling were so great that concentrated effort should be put forth to accomplish even greater results in increasing the average daily movement of freight cars on the railroads as a whole.

The meeting was opened Wednesday morning with an address by W. M. Neal, assistant to vice-president of the Canadian Pacific, who outlined briefly the development of railways in Canada since 1881, and stated that where automatic block signals had been installed on certain sections of the Canadian Pacific that an increased track capacity had resulted.

B. J. Schwendt, assistant signal engineer, New York Central Lines, West, presented a paper, illustrated by lantern slides, describing the operation of the recent installation of the General Railway Signal Company's centralized dispatching system on the Ohio division of the New York Central as described in the *Railway Age*, of August 20, page 325.

In answer to a question from one member, Mr. Schwendt explained that the OS report of a train movement at each switch was proving to be satisfactory and that continuous indication of the position of the train was not required for such an installation, unless the sidings were farther apart.

A motion picture was presented, illustrating the system of centralized train dispatching as manufactured by the Union Switch & Signal Company which is being installed on a 30-mile section of the Pere Marquette.

## Report on Economics of Railway Signaling

The Committee on the Economics of Railway Signaling, J. E. Saunders (D. L. & W.), chairman, presented a report on: (1) Outline for use in determining the

**Outline for Use in Determining the Economics of Proposed Automatic Signaling Between ..... and .....**

SUMMARY YEARLY SAVINGS

| Item No. | Nature of saving | Train hours | Amount |
|---|---|---|---|
| 1. | Train hours saved due to increase in average speed... | .... | ..... |
| | (a) Speeding up train movements in bad weather..... | .... | ..... |
| | (b) Use of "19" order in place of "31" order..... | .... | ..... |
| | (c) Train waiting for block..... | .... | ..... |
| | (d) Elimination of train stops..... | .... | ..... |
| | (e) Traffic locking ..... | .... | ..... |
| | (f) Miscellaneous ..... | .... | ..... |
| 2. | Operating expense saved due to reduction in number of: | | |
| | (a) Locomotives and cars..... | | ..... |
| | (b) Operators ..... | | ..... |
| | (c) Train orders ..... | | ..... |
| | (d) Switch lights ..... | | ..... |
| | (e) Manual block stations..... | | ..... |
| 3. | Reduced operating cost due to: | | |
| | (a) Per diem..... | | ..... |
| | (b) Reduced cost of collisions and accidents..... | | ..... |
| | (c) Electric lighting ..... | | ..... |
| | (d) Reduction in overtime (other than train and engine crews) | | ..... |
| | (e) Delayed installation of additional tracks..... | | ..... |
| | (f) Remotely operated switches..... | | ..... |
| 4. | Gross saving (Items 1, 2 and 3)..... | | ..... |
| 5. | First cost of automatic signal installation: (Consider allowing credit for engines and cars saved.) | | |
| | (a) Investment ..... $..... | | |
| | (b) Operating ..... $..... | | |
| | (c) Total ..... $..... | | |
| 6. | Estimated annual cost including maintenance and operation of automatic signal installation (not including interest)..... | | ..... |
| 7. | Estimated saving per year, item 4 minus item 6..... | | ..... |
| 8. | Annual return on expenditure, item 7 divided by item 5-c ..... per cent. | | |
| 9. | Annual return on capital account, item 7 divided by item 5-a ..... per cent. | | |

Office of ..... Date..... Signed.....

**Outline for Use in Determining the Economics of Proposed Interlocking at .....**

Time per month lost by trains on account of making crossing or junction stops required by law at ..... assuming trains make the stop, as compared with proceeding over the crossings at ..... at ..... per hour.

Month of ....., 19...
(Select a representative month)

| | Name of railroad and kinds of trains | Number of trains per month | Average time lost per train (min.) | Total time lost per month (hr.) | Per cent of trains on overtime | Average number of cars per train | Average gross tons per freight train excluding engine and tender | Remarks |
|---|---|---|---|---|---|---|---|---|
| "A" | Passenger ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| | Through freight. ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| | Local freight... ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| | Others ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

| Data | Hours | Hours saved by interlocking | Value of a train hour reclaimed | Totals |
|---|---|---|---|---|
| 1. Total time lost per year—passenger trains ..... | ..... | ..... | ..... | ..... |
| 2. Total time lost per year—through freight. ..... | ..... | ..... | ..... | ..... |

3. Total time lost per year—locomotives.... ..... ..... ..... .....
4. Total time lost per year—other..... ..... ..... ..... .....

5. Grand total ..... ..... ..... ..... .....

6. First cost of interlocking plant:
(a) Investment ..... $.....
(b) Operation ..... $.....

(c) Total ..... $.....
7. Estimated net annual cost of interlocking. (Including maintenance and operation, but not including interest on investment.)
8. Estimated saving per year (item 5 less item 7) $.....
9. Annual return on expenditure (item 8 divided by item 6-c) ..... per cent.
10. Annual return on capital account, (item 8 divided by item 6-a) ..... per cent.

..... Railroad.
Office of ..... Date ..... Signed .....

economics of automatic signaling; (2) outline for determining the economics of interlockings and (3) Summary of results obtained in train operation by signal indication on the Missouri Pacific.

### Discussion

J. E. Saunders (D. L. & W.), committee chairman, in presenting the report explained that the outlines for economics of proposed installations were not forms but were to be used merely as guides for those desiring to make such studies.

In answer to a question, B. J. Schwendt (N. Y. C.), vice-chairman, explained that the Seaboard Air Line had calculated the cost of accidents by compiling costs for all accidents for a 10-year period prior to the installation of signals and comparing this as an average with such charges since the signals were in service.

T. S. Stevens (A. T. & S. F.) inquired if the committee was taking into consideration the saving of time in yards. In making an investigation for a proposed installation of signals he found that the prospect of saving much time on the road was not definite; but trains were being held in the yards until a more favorable time to get them over the road and of course this time was a loss just as real as though the same time had been lost on the road after the train was started.

## Report on Highway Crossing Protection

The committee on Highway Crossing Protection, A. H. Rudd (Penna.), chairman, presented a report, an abstract of which follows, on (1) development in highway crossing signals, (2) federal and state activities and (3) code of colors for traffic (highway) signals.

### The Pedestrian Bell for Certain Locations

The committee recognizes the fact that bells, to be of use in stopping all classes of automobiles, must usually be so loud as to constitute an annoyance, and should not be used for this purpose; but they may be a valuable auxiliary to the visual signals at crossings used by considerable numbers of pedestrains, such as those located near factories and schools. It is suggested that the "pedestrian" bell, is sufficiently loud to warn pedestrians or drivers of horse-drawn vehicles, and is, therefore, less annoying to people in the vicinity.

In the opinion of the committee local conditions should govern as to the location of the highway crossing signal as to whether it is placed on the right or left side or over the highway, and the wishes of the residents or authorities having jurisdiction should be complied with as far as possible.

Uniformity is desirable and it would seem that a reasonable basis is to place the signals on the right side of such roads where other warning signals are so located. If in a certain locality it is the practice to place signals such as "Silent Policemen," constantly flashing lights, etc., in the center of the highway or where traffic police are so stationed, it would appear reasonable to place the highway crossing signal in a similar location.

In Delaware, where there is no public service commission, the highway department requests that these signals be located in the center of the highway and in several cases has agreed to widen the highway if necessary. In Pennsylvania, neither the public service commission nor the highway department desires signals in the center of the street. In New York and New Jersey, the board of public utility commissioners prefers the signals in the center of the street, but the highway department will not permit this on roads where it has jurisdiction.

Apparently, therefore, there is no possibility of arriving at a uniform location, although it would seem that on narrow streets or highways the location should be on the right of vehicles approaching the crossing, especially on one-way streets; where the roads are wide, in the center of the highway; and, on some of the broad highways built for two or three lanes of travel in each direction, additional safety would be attained by installing two signals on each side of the railroad, one to the right of the road and one in the center.

### Combined Manual and Automatic Control

A considerable difference of opinion exists as to the advisability of installing highway crossings signals where crossing watchmen or gatemen are on duty part time. Some railroads feel that a raised crossing gate, or an unattended crossing, where a watchman is stationed during part of the day, constitutes an extra hazard, and that highway crossing signals should be provided to operate during the hours the watchman is off duty; others feel that if the highway crossing signals are provided, they should be operated by every train. It is the practice of others to give the watchman control while on duty, automatic operation being in effect at other times.

On May 18, 1927, highway crossing signals were installed on a line where the entire operation is a shifting movement, with switches located at three places, so arranged that the signals can be operated from either of the three places, or rendered inoperative at any of the three by trainmen. The requirement in this case is that before trains or engines use the crossing, trainmen must throw on the lights, and a bell has been installed for additional warning to the public and as a reminder to the trainmen to throw off the lights when train movement over the crossing or switching is finished.

At other locations, where considerable switching is done over some of the circuits and watchmen are on duty during the time when this switching is largely done, they control the highway crossing signals manually, setting them not only for movements on the main track, but for movements on the siding, restoring the automatic feature when leaving their work.

It is the opinion of the committee that, while most of the railroads have recognized the utility of the highway crossing signals, operated automatically, only a few have developed their manual operation to anywhere near the extent possible, such as the remote control of these signals so that a watchman at a central point can protect any number of crossings within a reasonable distance.

### Traffic Signals as Crossing Signals

Is it advisable to use city traffic signals for highway

grade crossing protection, or, if not, to operate these signals jointly with the city authorities?

In many cases, it is not possible to erect such signals in city streets, or, if they are so erected, they cause confusion with the city signals, or the city signals with them. In some cases, the city street signal is so located, as at a corner, that when it indicates "Stop," the number of vehicles is such that they extend back over the railroad crossing. In other cases, the city signal indicates "Go" when a train is approaching within a few feet.

In other cases, the city signals are located on each side of the crossing, and the crossing signals or gates are operated independently. In such cases, it would seem practical and advisable for the municipal and railroad people to co-operate and harmonize the differences. It seems that a common sense arrangement would be that, where the city traffic policeman is on duty, he should operate the city lights at will, except that through inter-connection, or otherwise, it should be impossible to give a clear indication for traffic to move across the crossing when the railroad signal indicates "Danger." When the city traffic policeman is off duty, as is quite frequently the case, he should switch the signals over, so that they will operate automatically, except that when a train is approaching, provision should be made through inter-connection or by action of the railroad crossing watchman to set these signals at "Stop," but not to clear them—in short, apply the principle of a semi-automatic interlocking signal, the city traffic policeman being able to clear the signal unless there is a train approaching, a train which sets the signal at stop not being able to clear it again but putting the apparatus in such condition that the operator or the timing mechanism may clear it. Some installations have been made where there is no highway crossing watchman, but where an approaching train sets the city traffic signal at "Stop" and holds it so until it reaches the crossing.

In a number of states where constantly flashing lights have been erected by the highway departments at railroad crossings, they have consented to change these from red to yellow. If this is done, the approach of a train or the action of the highway crossing watchman, might well change these to a steady burning red light until the train has passed.

It would seem that in no case should the crossing watchman be able to give a green light or proceed signal on these traffic signals, although after a train has passed he should, of course, restore the signal apparatus so that it will operate as a traffic signal.

The Safety Section of the A.R.A. has suggested that crossing watchmen, provided with red lamps shielded from the railroad, swing these lamps across the highways when a train is approaching, in order that this lamp, under present practice held stationary, might not be mistaken for an automobile tail light or some other light.

The committee favors this proposal, as such action on the part of the watchman would provide a signal almost identical with our recommended highway crossing signals, namely, have the "appearance of a horizontally swinging red light or disc." In our opinion, the more closely we can appropriate the standard, the more confusion will be eliminated. If this were universally done, it seems to us that it might result in many cases in substituting highway crossing signals for the watchman.

The California commission has issued a definite order prescribing that the wig-wag type automatic flagman shall be the type of protection used for highway crossings, and that the banner shall be painted red. The Board of Railway Commissioners of Canada has established as standard the three-position wig-wag, the third position indicating that the device is out of order.

### Discussion

As an additional development not mentioned in the report the chairman requested C. J. Kelloway (A. C. L.), member of the committee, to explain an installation completed recently in Orlando, Fla. The city had requested the railroad to install crossing gates at 22 grade crossings of streets and later the request had been withdrawn and the railroads had been permitted to install traffic signals similar to those used throughout the city, which indicate red for stop, yellow for caution and green for clear. For 16 hours each day, starting at 7 a. m., these crossing signals are controlled by men in towers, several crossings being managed by one man. During the remaining eight hours the signals are inoperative, a yellow lamp being flashed continuously as a caution indication. Trains are operated not to exceed 25 m.p.h. in this territory. Drivers of highway vehicles that disregard these signal indications are prosecuted by local authorities. One careless driver ran into a crossing signal and was fined $250, given a 60-day sentence at hard labor and required to pay for damages to the signal.

W. J. Eck (Sou.) stated that the Southern was installing traffic type signals at four crossings in Memphis, Tenn.

W. F. Zane (C. B. & Q.) and Leroy Wyant (C. R. I. & P.) expressed the opinion that generally the roads should not install the traffic type signal but should insist on following the recommendations of the Signal Section, to use wig-wags or flashing lights.

A. H. Rudd (Penna.), chairman of the committee, stated that in general the highway departments of the states have jurisdiction on the highways only (not in cities) and that if the crossing signals recommended by the Signal Section are installed on highways that it may be advisable to go along with local authorities and use the traffic signals in cities; though he had himself opposed the installation of traffic type signals in certain cases.

## Report on Signaling Practice

The Committee on Signaling Practice, B. T. Anderson, (C. & O.), chairman, presented a report on, (1) automotic train control, (2) definitions for the display of light signal indications and aspects, (3) signal aspects, signal indications and names of indications, including a complete set of indication charts.

An extensive report prepared by the committee summarized the status of the automatic train control installations in the service on the railroads and gave in brief the important points in the inspection reports made by the Interstate Commerce Commission.

### Definitions of Speeds

The committee recommended the rules for the operation of trains with reference to speed as governed by signal indications be as follows: Medium speed—30 m.p.h.; slow speed—15 m.p.h.; restricted speed—proceed prepared to stop short of a train, obstruction or anything that may require the speed of the train to be reduced.

The committee recommended the use of number plates to distinguish signals.

### Discussion

This report was presented by W. M. Post (Penna.), vice-chairman. The section dealing with definitions and

that on aspects elicited considerable discussion and the committee concluded to offer its definitions, requisites and aspects, not for presentation at the annual meeting but only for discussion. The adoption of the term "medium speed" will on many roads involve a change in the meaning of "restricted speed," and many questions were asked. The recommendations presented by the committee were formulated after conference with the train rules committee of the Operating Division A. R. A., and embody the points agreed upon by the two committees.

G. H. Dryden (B. & O.) presented a written discussion of the display of light signal indications and aspects as presented by the committee, stating that in certain aspects a more favorable indication permitting greater speed would be displayed in case certain lamps should burn out. In his opinion the existing methods of checking one lamp circuit through other lamps was not satisfactory, therefore he objected to the aspects and indications presented by the committee.

### Tells of Practice

J. E. Saunders (D. L. & W.) explained that the Lackawanna with great satisfaction operated trains from 50 to 60 m.p.h. on two and three minute headway using the aspects and indications recommended by the committee and that he therefore wished to sustain the recommendation of the committee.

A. H. Rudd (Penna.), in discussing the subject of automatic train control as compared with other equipment to afford protection, voiced the belief of a considerable number of signal engineers that cab signaling would meet all requirements. Automatic block signals are better than manual block but in Mr. Rudd's opinion more than automatic (roadside) signals are required for dense traffic. Cab signaling will provide a moving block system that will expedite traffic safely, especially in foggy weather. Under certain conditions, the automatic stop is a menace, said Mr. Rudd. Inability or neglect to forestall, on the part of the engineman had been already the cause of a total of five wrecks on three prominent railroads.

The ideal space interval is one in which the track circuits are short but with overlapping control so that trains are kept braking distance apart; and with cab signals, this can be done. This principle was embodied years ago on the Brooklyn bridge (New York) where trolley cars received wayside indications every 100 ft. Quite possibly we may have this arrangement in use on our very busy lines in, say, ten years, when we have learned to appreciate its value.

## Other Reports of Importance

The importance of providing instructions for new men entering the signaling field as well as those wishing to learn more about their own work has been recognized by the Signal Section and the Committee on Instructions, J. S. Gensheimer, (Penna.), chairman, has been working for several years on a book on signaling, several chapters of which are completed; and the chapters on direct current track circuits and on highway crossing protection were presented for discussion at this meeting. A set of definitions for technical terms used in signaling is also being prepared. The report at this time included words beginning in letters from H to O.

The relay is said to be the brains of any automatic signal or interlocking installation and therefore it is important that studies be made continuously to improve the safety and economy of such devices. The new specification on d-c. neutral relays presented by the Committee on D-C. Automatic Signaling, E. N. Fox, (B. & M.), chairman, includes features that are decided improvements in efficiency and safety of operation. Specifications for wood trunking and capping were also presented by this committee.

### Committee's Work an Aid

The use of electrical equipment and control circuits to secure safety for signal controls, combined with mechanical interlocking connections for the operation of switches and derails, to secure economy and reliability, have been used in the form of electro-mechanical interlockings for several years and, therefore, the work of the Committee on Mechanical Interlocking, W. N. Spangler (Penna.), chairman, in preparing a specification on electro-mechanical interlocking should assist in standardizing such apparatus.

With about 15,000 miles of track and 7,000 engines equipped for automatic train control in the United States, the problem of making the correct distribution of charges has been presented to the Committee on Contracts and Valuation, G. E. Beck, (N.Y.C.), chairman, which has prepared a list showing the proper distribution of installation, maintenance, and operation charges of train control equipment. The Table of Signal Units and values has been revised to include additional items, such as car retarders.

### New Designs

The Committee on Designs, A. H. McKeen, (U. P.), chairman, presented two revised drawings and named six drawings to be made obsolete as well as four new drawings of battery boxes, bases for ground signal, and foundations for mechanical dwarf signals.

Many changes have been made in the construction methods for power interlockings in recent years. Therefore, the Committee on Power Interlockings has prepared a complete revision of the specification on the installation of electric interlocking systems. This committee, of which E. T. Ambach, (B. & O.), is chairman, has also prepared a specification for automatic signal protection for railway grade crossings and the adoption of such a spcification should assist in standardizing these installations so as to increase their use as quickly as possible.

The Committee on Chemicals, I. S. Raymer (P. & L. E.), chairman, presented a specification on Portland cement for use in signal and interlocking construction, which specification is in accord with that of the American Railway Engineering Association and other important engineering societies.

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THE GREAT WESTERN RAILWAY of England, has recently made changes in tracks and signals at the London terminus (Paddington) at an expense of £170,000. Two signal towers were taken down and a new one put up, containing 117 levers; 100 new switches and frogs were put in. Hand signalmen to the number of 50 were employed to give directions to trains when signals were out of service. At one time the whole of the outbound side of the station was out of use for 8½ hours.

THE PENNSYLVANIA, acting on authority of an order of the New York State Public Service Commission and because of serious falling off in traffic, will discontinue the services of its agent at Tuscarora, Livingston County, N. Y. The order stipulates that the passenger station shall be opened half an hour before the scheduled arrival of the first passenger train and kept open until the departure of the last train; and that an employee be placed on duty to look after the general public and incoming and outgoing freight and express business.

# Claim Prevention Conference

*Superintendents participate in meeting at Virginia Beach, Va.—Accounting factors discussed*

PLANS for renewed attacks on the problem of reducing the number of claims for lost and damaged freight were discussed at a joint meeting of the Southeastern Claim Conference, the Eastern Claim Conference and the Virginia Claim Conference at the Cavalier hotel, Virgina Beach, Va., on September 8, following a meeting of the twelve members of the Freight Claim Prevention Committee of the Freight Claim Division of the American Railway Association on September 5 and 6 and separate meetings of the three territorial claim conferences on September 7, at the same place. The meetings were also attended by the three special representatives and the secretary, Lewis Pilcher, of the Freight Claim Prevention Committee, and the joint meeting was attended by 19 superintendents who responded to an invitation to each railroad in the eastern and southeastern territories to have a superintendent present in an effort to arouse an increasing interest among the superintendents, and through them the men actually handling freight, in the importance of the problem. The joint meeting was also attended by 66 claim prevention officers and 28 men from the traffic, accounting and other departments.

### Carload Damage and Lost Freight

An effort was made to concentrate the discussion on the two important sources of loss and damage claims, carload damage and lost freight, which in recent years have not shown the results in the way of improvement which have followed the campaign for claim prevention in general, and as to which it was felt that an increased interest in and understanding of the importance of the problem by the superintendents would be productive of results.

At the conclusion of the meeting a resolution was adopted by which the superintendents present undertook to enlist the aid of other superintendents on their own and other lines to the end that all supervising officers of the three conference territories may be reached.

This was the first joint meeting of the three conferences held since 1902. T. C. Smith, freight claim agent of the Central of New Jersey, and chairman of the Eastern Claim Conference, was elected chairman of the joint meeting.

### One Big Cause and 12 Big Commodities

J. D. Shields, freight claim agent of the Chicago, Burlington & Quincy and chairman of the Freight Claim Prevention Committee, read a paper on "The Present Status of Loss and Damage Prevention," describing the campaign conducted since 1920 during which time freight claim payments have been reduced from $125,000,000 to $38,000,000 in 1926. However, he said there is a belief that unless some new methods are adopted it will be impossible to reduce the 1926 figure and during the first six months of 1927 there has been an increase of about $800,000. The reductions in claims for unlocated damage and concealed damage due to rough handling have not been in keeping with those made in other items, and these items now amount to about half of the total, the principal commodities affected being such things as fruits and vegetables, eggs, livestock, furniture, automobiles, glassware, machinery, etc. There are many obstacles to a reduction of this class of claims, Mr. Shields said, and during the coming year these "high spots" are to receive special attention. Carriers are to be asked to keep more detailed statistics that will enable claim prevention officers to direct their efforts where they will do the most good. Most claim prevention officers can locate the causes and know what should be done, he said, and many operating officers are striving to bring about better conditions. The problem has now reduced itself largely to one big cause and 12 big commodities.

### Accounting Phases Topic of Discussion

E. H. Kemper, president of the Railway Accounting Officers' Association, pointing to the importance of accounting or statistical information in analytical work, pledged the wholehearted support of the accounting officers' association in the efforts of the claim prevention organizations. Standard forms, he said, have contributed much toward claim prevention and the proper and prompt settlement of claims, and in this connection he called attention to the advantages of interline waybilling.

Mr. Kemper said that the accounting officers are now taking up with the traffic officers the question of better tariff conditions and simplified divisions, for the purpose of eliminating many of the accounts for disputed divisions now carried in suspense.

E. R. Woodson, secretary of the Railway Accounting Officers' Association, presented some suggestions for preventing overcharges and undercharges, as follows:

1. Simplification of tariffs and division bases.
2. Some general plan of constructing divisions under which it would be possible to place division basis in the hands of junction agents and others interested before the tariffs become effective.
3. Extension of joint through rates.
4. Extension of interline billing.
5. Proper instructions and advice to new or inexperienced agents, billing and revising clerks, or origin, at rewaybilling points and at destination, by competent senior station employees, or by traffic or accounting representatives assigned to and specializing in work of this nature.
6. Establishment of audit office revision bureaus at important interchange points, or at system points advantageously located, thus insuring proper revision by competent rate men prior to delivery of freight and relieving the agents at the smaller stations of this duty as far as practicable.
7. Inspection of station tariff files and recheck of station revision by traveling tariff inspectors, or rate clerks, especially assigned to and qualified for work of this nature.
8. Careful attention to the matter of weights, particularly on less carload traffic, with a system of test check weights and reports to be made en route, or at destination, by agents, if necessary, but preferably by traveling representatives assigned to and specializing on work of this nature.
9. Careful audit office revision, with an adequate system of advices to agents by correction notice, or otherwise, covering billing or revision errors made by

agents, thus guarding against a succession of errors similar in nature.

10. Close co-operation between the overcharge claim and waybill revision departments, with an adequate system of advices under which the latter may be informed of all revision failures developed in the handling of overcharge claims.

11. A monthly analysis of under and overcharge corrections accepted and of overcharge claims paid, showing as to each the number and amount chargeable to faulty work at each station, separated as to causes.

It is fundamental, Mr. Woodson said, that detailed information and directly placing responsibility should be the outstanding overcharge claim development. Overcharge claims are often paid without placing direct responsibility upon any one of the special forces charged with the duty of correctly determining the revenue and, therefore, without application of any necessary remedial measures. The opportunity for materially reducing overcharge claims through those means, he said, is too obvious to require amplification.

### Fruits and Vegetables

Fred C. Meier, pathologist, U. S. Department of Agriculture, in a paper on "New Roards to Claim Prevention," referring to the fact that in 1926 more than eight million dollars of railroad revenues "disappeared to cover responsibilities of the carriers in connection with the damage to fresh fruits and vegetables in transit," said that while the percentage relationship which the fruit and vegetable item bears to total claim payments steadily mounted until 1924, there has been a slight improvement since that time. In 1920 the percentage was 11.3; in 1921, 14.4; in 1922, 18.4; in 1923, 20.4; in 1924, 25; in 1925, 22.8 and in 1926, 21.7 This relationship, he said, is startling when we consider that fruits and vegetables make up but approximately 1.27 per cent of the total tonnage originating in the United States.

In conducting studies of wastage in transit and methods of reducing this type of loss, he said, it will be found that there are many existing agencies within the Department of Agriculture and in the states which can render service. In conclusion Mr. Meier listed several things which, he said, to a plant pathologist, it would seem that railroad organizations can do to reduce wastage in transit. Among these are: By competent inspection determine the facts involved in damage to fruits and vegetables. Conduct scientific analyses of inspection data and study the facts brought out in the light of published results of research with a view to drawing conclusions concerning lines of further attack. Stimulate and assist research to obtain information on which to base claim prevention activities. Train railroad employees with regard to facts related to methods of preventing damage in transit. Provide supervisors at the large loading points who will see that equipment is in proper shape at time of loading. Improve conditions for loading and transporting fruits and vegetables in order that shippers may practice recommended measures with regard to careful handling. Assist in carrying known facts to growers, shippers and receivers. Maintain closer co-operation between the Freight Claim Prevention Division and the agricultural development departments on originating lines. Keep in touch with the work under way in state and federal departments.

### Specialization

F. E. Winburn, special representative of the Freight Claim Prevention Committee, said that practically every railroad in the country is now actively engaged in the campaign for the prevention of claims and is actively studying the subject, but that the time has come where it is necessary to specialize and that it is particularly desirable that the superintendents should have a proper understanding of the problem because they have the supervision of the individuals who actually handle the freight. Every legitimate claim is the outcome of a failure somewhere and the problem is to get to the individual a proper understanding of his relation to the handling of the freight.

The one outstanding problem, Mr. Winburn said, is carload damage. Last year the carriers initialed 53 million carloads of freight, of which 13 million contained merchandise and 75 per cent of the rest, or about 30 million, were loaded by the shipper and unloaded by the consignee without any opportunity for a representative of the carriers to see the freight either loaded or unloaded. The problem has been presented to the shipping public in a generalized way, but it is vital that the idea be brought home to individuals that there is an opportunity for a saving to them in better packing and storing of their shipments, because in the last analysis the shipping public pays the loss and damage bill.

### Better Packing

Thomas E. Lyons, in charge of the Packing Section of the Transportation Division, U. S. Department of Commerce, explained the work his section has been doing in "Selling the Better Package Idea to the Shipper." It has been giving special study to the subject for several years, originally to assist American exporters. Sometime ago it published a pamphlet on "Packing for Foreign Markets," which proved so valuable that the department was asked to make a similar study for the domestic trade. The department is eager to carry on any work that will serve to improve transportation conditions and reduce loss and damage claims and it has been greatly interested in the wonderful results accomplished in the last six years because of the striking example offered to industry of the value of concerted action and the collection of statistics in attacking any problem. Practically every great problem which has confronted the people of this country has been solved by education. Mr. Lyons said, and if we are to improve packing conditions and eliminate shipping losses, it is essential to educate the shippers. Many manufacturers today are little concerned over loss and damage claims, but scientific research has proved that effective packing can be done at a lower expense in many cases than inefficient packing. The Department of Commerce, and especially the Transportation Division, will be glad to stress these points at any opportunity and believes that the distribution of its pamphlets on packing will be of great value.

### Supervision

After the reading of the various papers, Joe Marshall, special representative of the Freight Claim Prevention Committee, spoke on "Overcoming Man Failure." He emphasized the importance of supervising officers reaching the employees in yards and elsewhere with information as to the causes of loss and damage to freight and the importance of the subject, in a way to keep it in their minds. One of the best ways to reach the men, he said, is through local committee meetings, and supervision should be made effective by some system of checking. The meeting was then turned over to a series of short talks, directed to the things to be done to reach those who have to do with the actual handling of freight, on carload damage (a) individual railroad responsibilities (b) superintendents' opportunities, and lost freight.

Many of the superintendents spoke briefly, saying

they realized that it is not enough to have given the shippers better service in point of time and the railroads greater efficiency in the way of heavier train loading, etc., but that it is now necessary to give the shippers better handling of freight and to talk to them about co-operation on their part in the way of better packing.

Various speakers pointed out the many opportunities of a superintendent in improving the loss and damage situation, ranging from the selection of cars for loading to the supervision of station and yard forces. They also spoke of the thousands of details a superintendent already has to look after and pointed to the need for specialist assistance, because much of the educational work must be done by personal contact with shippers and employees. Each railroad, one speaker said, should attach to the staff of its chief operating officer a man thoroughly experienced in yard operation to devote his entire time to car handling.

F. G. Hoskins, division superintendent, Baltimore & Ohio, said that although operating men have been called upon to speed up the handling of trains and to increase the train load, these things are not necessarily an obstacle to claim prevention because the heavier train loading has brought increased supervision and on the B. & O. it has been found that the damage to cars in hump yards is not so great as that in flat yards. It is necessary, he said, to educate the employees as a whole and on the B. & O. freight claim prevention meetings are hold at which employees from every part of the service are in attendance.

Other speakers advocated meetings of the employees for the purpose of interesting them in the importance of greater care in the handling of cars, and several suggestions were made that a special organization be created for the purpose of carrying on the work of constantly keeping the subject uppermost in the minds of the men and the maintaining of contact with individuals.

# Should the Railways Operate Ships?

## *Former chairman of shipping board believes ocean lines should supplement rail service*

"THE railways should enter the business of ocean transportation to a large extent," said Edward N. Hurley, in an interview published in the New York Times and the Chicago Tribune on September 4. Mr. Hurley, in addition to having been the war-time chairman of the United States Shipping Board, has served as a director of certain railways for a number of years. In view of this, and the further fact that it seems probable the question of the future of the United States merchant marine will be threshed out during the next session of Congress, Mr. Hurley was asked by the *Railway Age* for a further expression of his views on the subject.

"It is to the railways that the United States merchant marine must look for salvation," Mr. Hurley declared. "If we are to maintain our flag on the seas," he continued, "it must be done under private operation and management. Government control and government subsidization have served their purpose. I am thoroughly in accord with President Coolidge's determination to rid our shipping of government control and restore it once more to the basis of private management and enterprise. Shipping is not an industry in which the government should engage in peace-time. This being true, what is more natural and logical than that the railways should extend their activities to cover the merchant marine?

"It is an admitted fact that American railways are now the best in the world. Why should they confine their transportation scope to the boundaries of this country? It is time that they became internationally-minded.

"The time when one or two ships might be operated profitably, as an independent undertaking, is past. In Great Britain, for example, all the shipping interests are in the hands of a few large corporations. It has become essential that we develop real leaders in the American shipping world and put transportation by the American merchant marine on an economically sound basis; for unless our plans along these lines are on a scale as large as that of our competitors, we shall not have a stable, continuing merchant marine of our own.

"It is for these reasons that I advance the thought that the railways hold the key to the solution of the problem. The railways are engaged in the transportation of passengers and freight on a large scale. Accordingly, they have readily available all of the machinery necessary to put such a plan into execution. It would merely require an extension of their present field into an activity of a similar kind, since shipping is a similar problem, whether it is by sea or land.

"It is perfectly feasible for the railways to acquire and operate fleets of ocean-going vessels. Some of them are now doing so on a fairly large scale in coast-wise trade. There are any number of excellent ships available, which the government would sell at a very low figure, considerably below cost, in fact. There would be no difficulty in securing an adequate and experienced personnel of officers and men to man the ships. The thousands of officers and men given a thorough training during the war would solve this difficulty.

### Comparative Costs of Operation

"The objection will inevitably be raised in this connection that operating costs would be very much higher on American ships than on those of other nationalities, because of the higher wages it would be necessary to pay under the seaman's law. This objection is not sound. Wages represent only 8 per cent of the operating costs of a ship, fuel representing 45 per cent and port charges another large percentage. The difference in wages is never more than 10 per cent, so that it will be seen that this difference amounts to only 0.8 per cent of the operating costs, a truly negligible factor.

"The transportation of freight and passengers is the logical business of the railroads. That is their purpose. That is why they exist. Manifestly, the longer the haul, the greater the profit. At present there is too much duplication in time, energy and organization to accomplish what a co-ordination of these factors would achieve much more efficiently.

"Many of our railroads have agents in foreign countries. These agents secure freight to be shipped over their lines in America. But in this way they get only

part of the haul. They get the land part only because that is all they are equipped to handle. I cannot consider this good business.

"The operation of a merchant fleet by a railroad would materially reduce the cost of operation. Likewise, the expense incident to procuring freight and passengers for the ships would be cut to the minimum, compared with present methods which duplicate one another.

### Single Bill of Lading

"If our great railroads that are now confined to the transportation of foreign and domestic freight between the various seaboards of this country, were to become interested in extending themselves by operating a fleet of ships, our freight could move into the markets of the world under a single bill of lading, and the success of our merchant fleet would be assured.

"More could be accomplished in 5 years by the venture of leading railroads into the shipping business than in 20 years of independent shipping.

"It is true that there is some difference in the cost of constructing a ship in the United States, compared with the cost of construction in Great Britain and Germany, because our wages are higher. But such difference is largely balanced by our greater efficiency in construction and the greater efficiency of our shipyards. Likewise, the United States Steel Corporation, the Standard Oil Company of New Jersey, and other large operators of tankers have been able to run their fleets profitably under the American flag, by efficient methods of handling their crews, and particularly by quick turnaround at ports, and other effective methods which have tended further to cut this differential.

### Many Ships Available

"The government has on hand a large number of ships, remnant of that great fleet of cargo vessels built during the war. These ships should be sold at once and at exceptionally low prices so that they may go into immediate service. Otherwise they will be obsolete within a few years. The new high-speed freighter has become the ideal ship. These slower vessels built during the war cannot compete with faster ships, and the longer the government holds on to them the more difficult it will be to get rid of them.

"If sold now at a low enough figure to the railways, they can make a fair showing because the interest charges on capital investment will be reduced to the minimum, and this will permit a margin for competition with more modern ships. The main objective, however, is to get them into service and in the hands of private companies, regardless of price, before they are worthless.

### A Traffic Agreement Plan

"Possibly a necessary preliminary step in getting the railways into ocean shipping would be for the trunk lines reaching our salt water ports to join, with the approval of the Interstate Commerce Commission and the United States shipping board, along the lines suggested, with our shipping companies now engaged in the overseas trade.

"It would not be necessary for the railways to turn over all their business to the shipping companies with which they had such traffic agreements. Even when British shipping was at its highest prosperity, only 50 per cent of British exports was handled in British ships. Otherwise, the ships would return empty from foreign ports.

"The railways should, however, enter into some such plan, if our merchant marine is to be saved. It would be to their benefit to do so, in view of the increased traffic they would receive and the profits they would derive from the operation of the ocean lines."

## Special Agents Reduce Robberies

A TOTAL of 51,886 persons were arrested and of these, 46,147 persons were convicted through the efforts of railroad special agents during the first six months of 1927, as compared with 55,689 arrests and 44,253 convictions during the same period of 1926, according to figures compiled by the Protective Section of the American Railway Association. Incidentally the claims paid by Class I carriers during the same period of 1927 for robbery and loss amounted to $2,863,487, which is a decrease of 10.4 per cent as compared with the first six months of 1926 when the total was $3,194,679. Among the causes contributing to these totals, robbery of other than entire package showed a reduction of 17 per cent in the payments in 1927, the amount being $254,722, as compared with $306,947 in 1926. Loss of entire package declined 14.1 per cent, the amount of the claims paid for this account being $1,154,876 in 1927 and $1,343,732 in 1926. Payments due to concealed loss decreased 10.5 per cent, the amount being $150,152 in 1927 and $167,806 in 1926. Robbery of entire package decreased from $415,558 to $383,319, or 7.8 per cent, while loss of other than entire package was reduced from $960,636 to $920,418, or 4.2 per cent.

### 97 Per Cent Convicted

Of the persons who were brought to trial in the first six months of 1927 more than 97 per cent were convicted. A total of 4,273 persons were arrested in the first half of 1927 for felonies, while the balance of the apprehensions or 47,613 were for misdemeanors. The corresponding figures for 1926 were 3,937 for felonies and 51,752 for misdemeanors. The largest number of arrests for any one month occurred in June of both years, when the total was 10,050 in 1927 and 12,684 in 1926. However, in the same month, arrests for felonies reached a minimum, the amounts being 662 in 1927 and 631 in 1926, while those for misdemeanors attained a maximum of 9,388 and 12,053 respectively. The maximum number of arrests for felonies occurred in March of 1927, the amount being 848, while in 1926 the largest number occurred in April when 878 arrests for felonies were made.

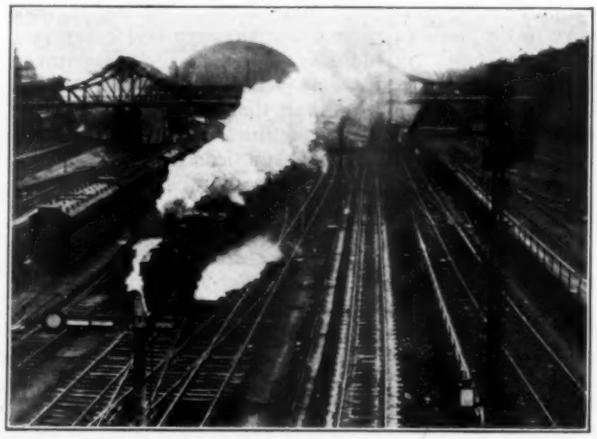


*Photo Rudolf Kreutzer*

**Approach Tracks to Central Station, Dresden, Germany**

# Shop and Car Foremen Discuss Supply Problems

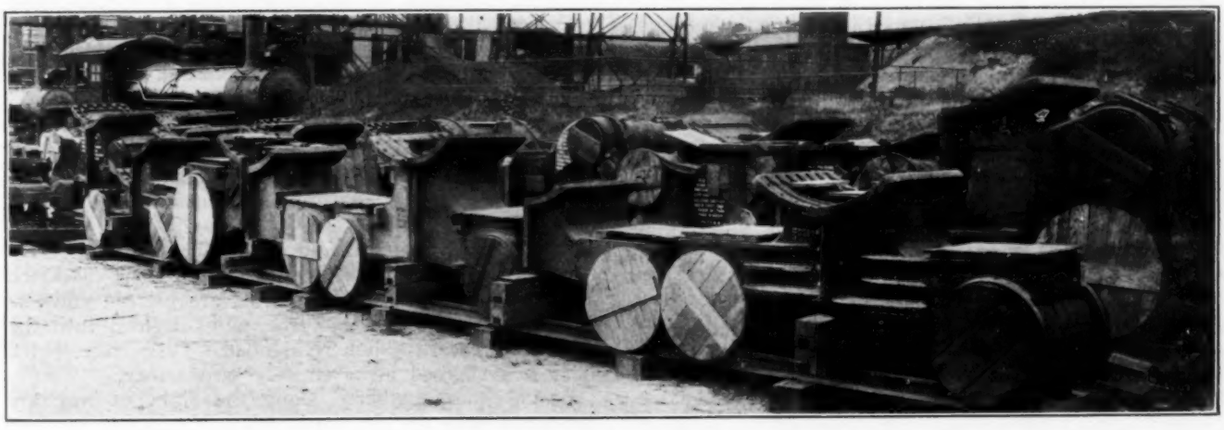
*General Foremen devote session to relations with store departments—Reclamation main topic*

APPROXIMATELY 250 general foremen of railroads of the United States and Canada spent the afternoon of September 7 during the 21st annual convention of the International General Foremen's Association discussing their opportunities and responsibilities in controlling the investment in materials and supplies. The session was addressed by A. C. Mann, vice-president in charge of purchases and stores, Illinois Central, whose remarks were supplemented by a moving picture of material handling at the Illinois Central's Chicago shops. In addition a committee led by F. A. Ahearn, (B. & L. E.), presented a report on reclamation as affecting stock control, and a detailed outline of reclamation practices on the Canadian National was given by G. T. Boone, general foreman at Quebec.

The car and locomotive departments of the railroads, said A. C. Mann in his address before the association, are users of approximately one-third of the materials and supplies bought by the railroads and it is the duty of shop and car department foremen to protect these materials and economize intelligently in their use. The storekeeper is not a mind reader. He can anticipate needs to a certain extent, especially on staple or constantly moving items, but mechanical department foremen have a duty to themselves and to their company to see that the storekeeper is kept posted as to the particular class of work ahead so that he can be prepared to supply needs as they arise. To be short of material is expensive and with the right sense of family responsibility, users will see that the storekeepers know their program.

The concentration of certain classes of cars or locomotives in certain shops brings about a minimum expense for materials as well as for labor, Mr. Mann pointed out. Another way to minimize this expense is through a knowledge of the value of material. The expenses of our railroads are controlled monthly through some kind of a budget or allowance system. This allowance to the various departments must necessarily be divided into labor, material and miscellaneous expense. From these allowances and a knowledge of labor rates, foremen determine the number of men that can be employed for a given number of working days, but how accurately, he charged, do they try to determine the expenses for material?

In controlling these expenses, he continued, users should be just as eager to sell something back to the storekeeper as they are to buy something from him. It is well known that after a special job is done, some material often remains unapplied and it is also known that a tendency of users is to keep such material in their possession with the idea that it may some time be used; but, he explained, if they would immediately turn back such surplus material, they would not only relieve material expense of its value but would enable the storekeeper to fill a need some place else on the railroad without purchase.



**Reclamation Aids in Reducing Stock by Eliminating Conditions Like This Where 15 or More Locomotive Cylinders, Some Costing Over $1000 Each, Were Kept for Protection**

If we are to include under reclamation all repairs to items of material required to make them usable, the converting of material into something other than it was originally intended to be, as well as the salvaging of usable material from the scrap pile, Mr. Mann said, the storekeeper must dominate the reclamation work, as the volume carried on will have an affect on his stock control and he must take into consideration the volume of material in order that he will not buy a like amount of new material.

The speaker advocated stores delivery under which the store department is responsible for delivering material directly to the user. It does away, he said, with the former expensive method of sending mechanical department employees to storehouses to secure their material. Considering the rates of pay now received by mechanics, it is desirable that their time be devoted entirely to the work for which they are employed. Economies can be effected by turning this work over

to the store department. At one plant, employing 1,250 men, where a study of a committee representing all departments was made, the store delivery system was found to effect a net saving to the railroad of approximately $10,000 per year. It has been found efficient on the Illinois Central.

## Report of Committee on Reclamation

Reclamation with discrimination was the key of a special committee report on the relation of reclamation as an aid to stock reduction. Interpreting reclamation to cover the restoration to the original or other service, of materials that are of no further use for their original purpose and also the repair of damaged tools, material and parts which reach the scrap bins, the committee declared itself in accord with the efforts of stores departments in promoting reclamation as an aid to stock reduction and urged the increased use of such material without prejudice, but cautioned against undue expense and the tendency towards over zealousness in handling the work. The report was in part as follows:

Reclamation at a loss, as is sometimes practiced, is not justified and flattering reports showing the amount saved or recovered by the reclamation plant at the expense of the company as a whole are not desired. Accumulations of slow-moving materials or accumulations in excess of normal issues will not only increase the stock on hand but will in many cases result in the reclaimed materials being returned to scrap later. This condition particularly applies to dismantling operations. Certain items, such as pipe-fittings, as well as valves and similar parts, unless carefully tested before being placed in stock, will often cause trouble and delay in excess of their value. The disinclination on the part of workmen towards the use of these items will also tend to cause an accumulation rather than a reduction of stock.

Reclamation is not profitable if the cost of material when reclaimed is in excess of 60 per cent of the value of new material. In one case, brake beams were reclaimed at a cost of $993, contrasted with the purchase cost of $1,789. In another instance, 99 beams were given a scrap value of $48 to which were added material, labor and superintendence at 25 per cent of the cost of labor, or $104, giving the beams a total cost of $153 reclaimed against $390 new. The reduction of stocks in the latter instance was in excess of 60 per cent.

In one case wrenches were reclaimed at a cost of 35 cents each, against a new value of 57 cents each, but in another the wrenches were reclaimed at a cost of 61 cents each against a new value of only 57 cents each, or less than the cost of the reclaimed material. Such records show that reclamation costs must be kept accurately to disclose whether the efforts are profitable or otherwise.

It is possible that the practice of reclaiming material by the store department instead of by the user of material prevents the fullest benefit from being derived from reclamation, a condition which is due largely to a lack of mutual understanding and co-operation by the two departments.

In reclamation, quality as well as quantity must be considered; otherwise there will always exist a tendency on the part of the users to avoid, as far as possible, the application of reclaim parts and thus tend to increase rather than to reduce stock. On the other hand, if reclamation work is carried on to secure the longest service life from materials at the least outlay, it is the duty of the user in all cases to give reclaimed material preference. There should be no objection to the application of properly reworked or reclaimed material, since the entire repaired equipment unit is to a certain extent a reclaimed job.

Where material deliveries are slow, reclamation of materials will reflect a decided gain in stock reduction efforts. The availability of reclaimable parts decreases the need for emergency stock. While any measure that will aid the stores departments in stock reduction efforts is favored, it must never be considered that the reclamation plant is an unloading point for materials which may be repaired readily at the point of removal.

It is possible for reclamation departments to become overzealous and to fail to inform other departments of the presence of serviceable materials at the scrap dock. They can also go beyond the bounds of good practice by reclaiming materials suitable only for scrap.

Many reclamation plants repair and reclaim certain tools gathered from line points. A notable stock reduction, as well as a saving in handling costs, is evident where these tools are repaired where received instead of being accumulated and delivered to equipment repair shops. Other items of this nature are sill steps, hand holds, draft yokes, draft keys and numerous other locomotive and car parts.

The committee submitted the following list of items as offering interesting possibilities in reclamation with a view of economy and stock reduction: Angle and cut-out cocks, axles, babbitt metal, boiler lagging, bolts, brake beams, car forgings, coil springs, flues and tubes, journal box packing and grease, locomotive tools and equipment, maintenance of way tools, nuts, oil boxes, pipe and pipe fittings, rods, roofing materials, sheets of various kinds, tinware tools, valves and items which find their way into the scrap.

Angle and cut-out cocks are repaired and reground on special machines. Axles for cars and tenders have their ends upset and are worked into smaller sizes. Babbitt metal is salvaged at the dope reclaiming plant.

Boiler lagging is reground and usually applied in plaster form.

Bolts are straightened and cut to shorter lengths, rethreaded in their existing lengths, or in some cases the larger bolts, such as column bolts, are pierced and expanded at the thread end, the plugs welded into the pierced end, and the bolt rethreaded. Tests have shown bolts so reclaimed to be entirely satisfactory.

Brake beams gathered along the right of way are cut down and the undamaged parts reassembled into serviceable units.

Car forgings from wrecked or dismantled cars are inspected and repaired if a need exists for the items.

Coil springs are straightened and made into bars or put to similar uses.

Flues are used for fence posts.

Journal box packing and journal box grease may be sorted and cleaned for further use. Locomotive tools, principally fire tools gathered along the right of way and around terminals, seldom need repairs beyond straightening.

Maintenance of way tools such as shovels are useless with broken handles which may at a small cost be replaced at the reclamation plant.

Oil boxes of pressed types are repaired profitably.

Pipe and pipe fittings may be reclaimed, but extreme discrimination must be used.

Rods, bars, and various shapes are sometimes rerolled where the amounts handled justify a rolling mill.

Roofing materials and sheets of various kinds are cut to smaller sizes or transferred to less exacting service than their original uses.

Tinware, tools and valves may all be repaired at a profit and at the same time, aid stock reduction if proper discrimination is used in the operations.

# Terminal Delays to Freight Cars*

*A discussion of many delays to rolling stock that could be avoided by the mechanical department*

By T. W. Demarest
General Superintendent Motive Power, Western Region, Pennsylvania

THE subject of terminal delays to freight cars is one of greatest importance to all of us and one which is directly connected with the effort of all railroads to further the transportation economies so vividly illustrated during the past three years.

At the July 14, 1927, meeting of the Midwest Shipper's Regional Advisory Board, M. J. Gormley, chairman Car Service Division, American Railway Association, in an address, indicated just what had been done and the possibilities of further improvement. The significant points made by Mr. Gormley were, perhaps from our viewpoint, as follows:

With a net increase of only 56,419 cars, the railroads handled the largest volume of traffic in their history without any car shortage, there being in fact a large surplus of equipment, amounting on the average to 205,054 cars; that this accomplishment, insofar as car equipment is concerned, was brought about by: The retirement of inefficient equipment; by better maintenance; reduction in the amount of equipment awaiting repairs, and by greater capacity and more efficiently designed cars.

The statement shows further, that the average carrying capacity per car had been increased 2.28 tons per car, and that the miles per car per day had been increased from 25.1 in 1920 to 30.4 per car per day in 1926; these figures include all cars, that is, those awaiting repairs, surplus cars and cars in the hands of the shippers for loading and unloading.

The Car Service Division having the above facts before it, reported to the Directors of the American Railway Association, at their meeting last May, that in its opinion the business of the country for some time to come, could be handled with 100,000 less box and open type cars, provided in part that there be a continuation of the present plan of maintaining equipment in the best possible condition, and that there be a further increase of one mile per day in average car mileage per day. It is the mechanical department's relation to these two items that I propose to discuss with you.

### Mechanical Department Responsibility in Car Service Division Program

The measure of the operating efficiency of any road, dependent of course, on the average length of haul, is car miles per car day, and just as a lack of track facilities for main line or yard service interfere with its free movement, so does the physical condition of the car interfere.

It is axiomatic, we believe, that the better general condition the equipment is kept in, the lower the average cost of keeping it in good condition and the shorter the time it must be held out of service for such maintenance. It is equally true, the better its general condition the more promptly it will pass through any terminal, no matter whether it is the question of interchanging it, loading it, or handling it through transportation yards or repair tracks.

The first essential, then, in avoiding not only terminal delays but also road delays, is car equipment in good condition. You may not have a direct responsibility in the general maintenance condition, but at least you can keep the higher officers, who are responsible, in touch with the situation. There is no question, however, but that you do have a direct responsibility for detail conditions existing in cars that are (a) set for loading; (b) transportation yard inspection and road work, (c) repair track work and indirectly for defects brought about by rough handling in yards and on the road.

In discussing these matters with you, heavy repair cars will be given no consideration as, in our opinion, heavy repair cars should be taken care of at a process shop and not be handled as an ordinary repair track operation. It must be emphasized here, and throughout this entire discussion, that terminal delays to cars, and not only terminal delays but delays in road movement, are a joint responsibility of the transportation department and the mechanical department, and that no real progress can be made until those officers who have the authority, recognize this fact and set up all of the operations for the benefit of the railroad as a whole. Yardmasters are being pressed and criticised for their lack of prompt handling of cars through the yard, trainmasters for their failures to get trains over the road without delay, and the mechanical department for any slowing up in operations due to inspection or to repairs or delays to road movements brought about by equipment failures.

Past practice has limited the movement of the car, so far as reinspection and repair work is concerned, to division or crew changing terminals, which generally may be located an average of 100 miles apart. I am neglecting, of course, those interferences with longer movement brought about by classification practices and length of haul. This practice has interfered with the free movement of the car, taken additional time, reduced the car miles per day, and increased the inspection and maintenance expense. There is no reason why any of us should be content to perpetuate this condition.

Insofar as the locomotive is concerned, at one time its utilization was dependent on the same factors and its daily use restricted in the same way. There seems today no limit to the possible length of the locomotive run and the length of a locomotive trip has been increased from 100 miles to 500 and, in instances, to 700 miles. It has been accomplished by preparing the locomotive for the trip. Just so the utilization of the freight car may be increased, by properly preparing the car for its movement.

### The Transportation Yard and the Repair Track

In your direct responsibilities there are two general situations. Ordinary transportation yard development consists of receiving, classification and departure tracks, although the two latter may be combined. Your responsibility begins before the cars reach the receiving yard—if off the road, not only the arrival time of the train should be known, but the track it will be yarded

*Abstract of an address delivered before the convention of the International Railway General Foremen's Association, at the Hotel Sherman, Chicago, September 6 to 9, 1927.

on and the makeup of the train as far as possible, i.e., whether it is slow or time freight, or a combination, so that the inspectors may be properly located not only in reference to the arriving train, but also in reference to the work already in the yard.

Another primary essential is the education of the inspectors. Until the standard car is further developed, there will be different designs to accomplish the same purpose on different cars and the weak point of each design must be known so that an inspector may make his inspection thoroughly and in the minimum time.

A knowledge of those failures which are responsible for a majority of road detentions, and which should receive special attention before despatching the car, is also vital. The majority of road detentions today are brought about by hot journals and while some improvement may be noted generally, the number is so far beyond good practice that none of us have any reason to congratulate ourselves.

Next, and more serious, is the question of brake beams dropping down due to defective hangers, hanger pins and hanger pin brackets.

Next comes broken arch bars. The use of a mirror and a flashlight will detect any number of defective arch bars which escape the more casual inspection methods. Loose column bolts and box bolts are principally responsible for this condition. Worn holes in arch bars exert an influence. Frozen nuts on loose column or box bolts are too often neglected. Too many drawbars are pulled out. While this trouble may have its inception in rough handling in yards or on the road, the draft gear cannot be neglected. A knowledge of the vital points and how to look for them is most essential.

On arrival in the receiving yard, the train should be blue-flagged and thoroughly inspected. The character of the work done in this yard should be arranged so as to produce the minimum overhead delay to the car and the train. For instance, to use an extreme example, one would not try to change a pair of wheels in this yard, replace a brake beam, or undertake the renewal of journal bearings. A cripple track should be provided so that as the train is classified, work out of the ordinary may be shifted out. Repairs may then proceed promptly while the work of shifting the train is done. Except in extreme cases, the car can then be made ready to go forward in the train without delaying the car or the classification of the train and without increasing the time in the departure yard. Where the classification and the departure yards are combined, delayed movement is bound to occur as the repair men can do no work during the operation of classification, and if the tracks are short and cars have to be doubled over to obtain a road train further delays ensue. Packing and oiling can probably best be done in the departure yard, which should be piped so that the air can be tested and repairs made to the brakes prior to setting out the road engine. Cars sent to the repair track should only be those which cannot be handled economically or expeditiously on the cripple track. This is to avoid extra shifting and extra delay to the car. Cars sent to the repair track should be thoroughly and properly conditioned. As you complete a thorough inspection and repairs in your transportation yards, you will be interested to note that cars are returned from the repair tracks with detail defects not tolerated in your transportation yard operations. This should be corrected.

### Classify Cars on the Repair Track

It seems needless to discuss ideal repair track layouts, the necessity for proper material supplies and tools. The correction of some of these items may require capital expenditures and others may be out of your direct control; but at least you can keep your superior officer in touch so that when the opportunity presents itself for improvement, he will know what to ask for and why.

You, however, may be able to increase your repair track output and decrease car delays by closer supervision over the cars as set on your repair tracks—not classification by destination, but classification by the amount of work to be done on the car. It is not unusual to see loads, two-day cars and one-day cars indiscriminately mixed on the same repair track, or if there is a separate track for the loads, cars on the same repair track with work on some which will prevent the release of the short time cars until the longer time cars are completed. Loads, long time cars, and short time cars should be spotted on different tracks. This premises advance knowledge of the condition of the cars before they are set and has generally received very little attention. If carried out, shifting will be reduced, cars will be released more quickly and the output of the track will be increased.

In any terminal the inbound business is generally distributed to connections, freight houses, team tracks or industries.

This is particularly true of points like Chicago, Cincinnati, St. Louis, etc., there being no beyond business on the same line. It is the practice on such a distribution, except bad order loads, to give the cars a running inspection only, with a safety appliance inspection on cars for interchange movement. If group prior classification has not been effected, the work of the inspectors and repairmen consumes more time than should be required.

As the cars to freight houses, team tracks and industries should, when unloaded, make outbound loads from the unloading location, while it may sound revolutionary, I am convinced that such cars should be conditioned before setting for unloading, and where this cannot be done, the car should be placed in the same category as a bad order load and shopped when empty. It is certain that if this practice is followed, time and shifting of the outbound load, will be saved. It is also certain that transfer cars would be pretty well eliminated. Our troubles today are largely due to the loading of improperly conditioned cars. The alternative would be to prepare the car at the point made empty. This in a terminal of any size is manifestly not practical.

### Prevention of Delay Not a Local Problem

While loads are usually received from connections to which cars are sent on order equivalent to the number of cars so sent, it is infrequent that the same empties furnished are returned as loads. The same is true of industries when served by more than one road, the shipper controlling the routing of the car. Consequently improvement in terminal delay, or any delay which will interfere with the free movement of the car, cannot be controlled locally, but can only be obtained by a united common movement by all roads. Cars are common property today, and as they follow the business are in fact operated in a general pool. This condition must be recognized in proper care of the car by the owner and proper care of the foreign car.

I desire to emphasize again the benefit to be derived from the development and adoption of standard cars. Not only will such cars be of generally better construction, but repairs while on foreign roads will be facilitated, material stocks will be reduced, and the inspection and inspection repair work will be speeded up. In effect the car will move more freely and with less delays, material will be common and delay on repairs due to the necessity of ordering special material or material from

the owner, will be eliminated. The reason for the delay in the development and the adoption of standard cars is not far to seek, and can be overcome by action on the part of the American Railway Association.

Too many delays occur in the handling of repair track cars, from the time they are shopped out in the transportation yard until they reach the repair track, and also to some extent on their return movement. A detail daily record of such movements will very quickly develop the slow point, and a potent cause for car delay can be eliminated. The general foreman and the yardmaster must work together to accomplish this, and again, the result can only be obtained by all departments recognizing what is best for the railroad and not what might be most convenient for one department. This applies not only to the loads, but to the empties as well.

Aside from some weak car constructions and an insufficiently high standard of general maintenance, depreciation of the equipment, bad order and shifted loads which cause transfer and the inspection and inspection repair work are very seriously affected by the character of the handling in transportation yards and on the road. There is no doubt but that changed transportation yard methods, the effort to speed up the yard handling of cars, the increased number of cars in road trains, and the increased speed and weight of such trains exercise a serious effect on car conditions and make bad order and weak cars. The general foreman must keep in touch with bad order cars developing from insufficient care in handling, and in conjunction with the yardmaster and, if necessary, his own superior officer, bring the facts before those who can correct the situation if it cannot be corrected locally.

In reviewing the entire question, I cannot see any new principles involved. The causes for delays and their remedy are in full view. The limit in operating and maintenance costs has not been reached and we have not yet begun to utilize fully or to obtain paying service from our freight cars. Not only can the paying time of a freight car be increased, but by so doing the capital invested in freight cars can be decreased. To obtain these results may mean change in policy and change in methods. It certainly requires common action, not only as between the departments on an individual road but also common action on the part of all roads. In the past we have been prone to say "We can't afford to do it." It seems to me we have reached the point where we must say "We can't afford not to do it."

# Recent Developments in Railroad Valuation

## *"Somewhere between views of extremists lies a fair and reasonable solution"*

A PAPER entitled "Recent Developments in Railroad Valuation" was presented by R. V. Fletcher, general solicitor of the Illinois Central, before the Section of Public Utility Law of the American Bar Association at Buffalo on August 30. "Within the year the question of how to value a railroad, if it has not become increasingly important, has unquestionably assumed aspects of added public interest," said Mr. Fletcher. "The decision of the Interstate Commerce Commission in the O'Fallon case by contrast and in comparison with the decision of the Supreme court in the McCardle case (*McCardle et al. vs Indianapolis Water Company*) has served to quicken discussion of the subject not only among those directly involved but also among economists and publicists. This O'Fallon decision, while it does not wholly adopt and apply the prudent investment theory of valuation, yet unquestionably leans far in that direction. Indeed, but for certain purely mechanical difficulties which were pointed out in the opinion the likelihood is that the commission would have adopted the theory in its entirety."

Mr. Fletcher reviewed the history of the "prudent investment theory" and said that over against it, "we have the so-called reproduction theory, which does not mean at all that cost of reproduction at current prices is the sole measure of value, but only that cost of reproduction shall be given effect, perhaps dominant effect." After reviewing the method of valuation adopted by the commission in the O'Fallon case, with which readers of the *Railway Age* are familiar, Mr. Fletcher continued:

"It will be seen that the theory of the commission, as applied, fails to give any effect to advanced prices insofar as structural and equipment quantities are concerned, provided these quantities come into existence in the pre-war period. This furnishes the chief ground of attack upon the order, and marks its principal departure from the federal rule. As a practical matter, the rule of the O'Fallon case will effect different railroads in varying degrees. If a railroad was structurally complete, or practically so, before the era of high prices set in, it will obviously derive no benefit in valuation from the advance, except as such increase may effect the value of lands. On the other hand, if we consider the situation of a road that has added largely to its property in recent years its valuation when brought down to date will show the effect of the higher level of late costs in the proportion that recent additions bear to the entire reproduction costs.

"As an illustration, the writer is quite familiar with a certain railroad, the carrier property of which was tentatively valued by the commission as of June 30, 1915, at $390,000,000, including working capital amounting to $7,000,000. Of this amount, $85,000,000 represents the value of land. The $305,000,000 representing cost of reproduction less depreciation, working capital and whatever allowance is conceived to have been made for intangibles will not be affected by the rise of values. But on this line, between June 15, 1915, and December 31, 1926, there has been expended for additions, betterments and extensions less retirements the sum of $278,715,000, much of which was spent in the era of high prices. If we add to this the land figure

of $85,000,000, it will be seen that property of the value of $363,715,000 may finally feel the effect of the advanced price level. Comparing this with the $305,000,000 figure not affected, we see that roughly more than 54 per cent of the property ought to get the benefit of the advance in prices. It is true that the figure representing additions has not in our illustration been depreciated, and, therefore, we are not comparing like with like, but the depreciation on this newly constructed property even on the commission's theory ought to be relatively small. In any event, the situation of this carrier serves to illustrate how different is the result as between a rapidly growing property and one that has stood still for a number of years.

### Prudent Investment or Present Value?

We have said that the conclusions in the O'Fallon case seem to run counter to the settled doctrine of the Supreme Court. While we are not asserting that this fact alone is sufficient to condemn the commission's conclusions (for it must do its duty as it sees it), yet when an administrative body declines to follow the construction put upon the law by the Supreme Court, the burden of proof, so to speak, rests heavily upon the agent of the legislature to justify its course. This seems to be recognized by the commission, and in various announcements on the subject certain commissioners have, with an elaboration that is a tribute to their industry and ability, sought to make clear the reasons why the cost of reproduction or present-day value theory ought not to be adopted. To these utterances must be added the vigorous dissent of Justice Brandeis in the South Western Telephone Company case. The reasons given in support of the prudent investment theory are based partly upon counsels of expediency and partly upon grounds that involve economic and ethical considerations.

Unquestionably the commission is better qualified than the courts to pass upon phases of the problem that involve questions of practical administration. In this aspect of the matter the statement of one of the commissioners is justified that the commission, by reason of experience with railroad problems, may without impropriety assume some superior qualifications in the premises. But when we come to deal with the constitutional, economic and moral features of the problems, features that involve a profound knowledge of our governmental system as well as an appreciation of what is sound, economically and ethically, the judgment of the commission carries no presumption of correctness. It is said that the rule, if it may be called a rule, in *Smyth* v. *Ames* has led to great confusion and uncertainty in the effort to apply it for the reason that the court has laid down no standards whereby administrative bodies may appraise each element of value mentioned in the opinion. On the other hand, it is said that the investment theory furnishes a comparatively easy method of ascertaining value, since the only thing needful is to ascertain costs.

"Whatever may be said as to so-called local utilities, the matter as applied to railroads is not quite so simple as it may seem. We have mentioned the fact that the commission has been unable to find what it really did cost to build the railroads of the country, and has been forced to adopt an expedient which recognizes the value of the reproduction principle as furnishing the only available method of approach. Again, the theory may involve an examination of each expenditure to determine whether it should have been made in just that form and to that extent, and in passing upon such questions there are limitless possibilities for differences of opinion leading to conclusions that are mere matters of judgment, if not conjecture.

"The criticism that the rule in *Smyth* v. *Ames* is not workable will largely disappear if dominant effect is given to that element of value which we call cost of reproduction, as many recent decisions indicate should be done. But the most satisfactory answer to the claim that only the investment theory is workable is found in the fact that the commission has issued hundreds of tentative railroad valuation reports and scores of final valuation reports containing the statement that historical cost could not be ascertained and that the value is obtained by considering the elements mentioned in *Smyth* v. *Ames*.

### Stability of the Rate Base

"Perhaps the reason upon which greatest emphasis is placed by the advocates of the investment theory is that this method gives greater certainty and stability to the rate base. Much has been written in an effort to demonstrate that if valuation is based upon current prices subject to violent annual fluctuations the rate base, instead of furnishing a steady foundation, will heave and toss like the decks of an ocean steamer in a storm with consequent distress and confusion to rate payers and carriers alike. But we know of no informed body of intelligent opinion that is advocating such a shifting standard. We are concerned here with 'relatively permanent higher levels and trends', to use Justice Butler's expression in the McCardle case. Those opposed to basing valuation on prudent investment alone ask only that the commission give effect to the fact that prices have been raised to what appears to be a plane or level substantially higher than in pre-war days and that 'an honest and intelligent forecast as to probable price and wage levels during a reasonable period in the immediate future' be made and effect given thereto in valuation. This would not seem to be a task impossible of performance, nor indeed more difficult than that involved in the basic valuations with the assumption that such valuations fairly represent the amount expended in constructing the property.

"Dealing with the economic side of the problem, the advocates of the prudent investment theory insist that those who have dedicated their money to public use are entitled only to a fair return upon the dollars invested. But, as has often been pointed out, and if we are not mistaken, in papers submitted here, this statement ignores entirely the depreciation in the value of the dollar, a mere medium of exchange, so that a six per cent return upon a stated number of dollars under present conditions and measured by purchasing power, means far less to the investor than six per cent upon the same number of dollars two decades ago. It is said that since the return, measured by a given rate, has in fact been diminished, it is only fair to compensate in part at least by increasing the rate base.

"The argument has been given attention by the prudent investment advocates. In the dissenting opinion of Commissioner Eastman in the San Pedro, Los Angeles & Salt Lake Case, he deals with this contention. Although he doubts the soundness of certain features of the argument, yet he says that he does not mean to argue that the depreciation of the dollar is entitled to no consideration. His view is, however, that the place for such consideration is in the rate of return, not in the valuation. As we understand the statement, it is that the rate base should always be measured by the number of dollars spent, without reference to their value, and that any injustice, if there be such, due to fluctuations in the value of the dollar, shall be taken

care of from time to time by lowering or increasing the rate of return. If the investor could depend upon this being done, his anxiety would be greatly quieted. But it is not so easy to increase the rate of return, however proper it may be theoretically. The effort to do so involves the necessity for educating and convincing public opinion upon an economic question which the average man has neither the time nor the opportunity to consider.

### Would Need Act of Congress

"When this argument came to be discussed in the O'Fallon case it was obvious that it could not be answered by the suggestion advanced in the San Pedro case, for the O'Fallon case dealt with recapture under a statute which fixed the rate of return at six per cent, beyond which no power except Congress itself can go. Mr Eastman, whose candor, honesty of purpose, industry, ability and devotion to the public service no one will question, in the face of this difficulty, again insists that the return rather than the rate base should be adjusted. But, obviously, this cannot be done without an act of Congress, and we are almost tempted to say that it would be easier to repeal the valuation and recapture acts in their entirety than to persuade Congress to pass such a law as would permit an increase in the rate of return. Indeed, the commission itself, a body less moved perhaps than any other governmental agency by the tides of public opinion, in administering paragraph 3 of Section 15(a) fixed in 1922 5¾ per cent as a fair rate of return, despite the admitted fact that labor and material prices were far above the pre-war basis.

### Bondholders and Stockholders

"In the majority and concurring opinion in the O'Fallon case emphasis is laid upon the fact that the railroad bondholder must take his pay in depreciated dollars, and it is suggested that the railroad stockholder is entitled to no other or different treatment. But it may be said that this argument overlooks certain fundamenal differences between the two classes. In one case the investor has loaned money to the railroad, the loan in most cases being secured by mortgage on the property, and has by contract agreed that he would take his pay in whatever dollars were current at the time the obligation, whether principal or interest, matured. If it was a gold bond, as many are, the contract fairly entered into is that the payment shall be made in gold coin of the present standard of weight and fineness. It is of the essence of the modern social order that persons of full age and sound mind shall be free to make their own contracts, and it is one of the principal objects of government to protect and enforce these contracts.

### Constitutional Rights

"But a stockholder, investing his money as a partner in an enterprise, subject to the hazards of loss or gain, depends not upon the explicit provisions of a written contract, but upon certain rights secured to him by the Constitution. This Constitution does not contain a guaranty that he will secure a return: it merely assures him that the public shall not prevent him from securing a fair return by restrictive regulation. Depending as he does upon the general principles of law, it is for the law to say what shall be taken as the basis of a fair return, and, in the absence of defining statutes in effect when the investment was made, the courts created to declare the law are free to adopt such a basis as commends itself as being fair and right. And if we assume that the law had been declared in a particular way prior to the making of the investment, the investor has the moral, if not legal, right to insist that this interpretation shall not be altered during the period of the investment.

"Finally, those who oppose the investment theory point to the Valuation Act itself as providing conclusive proof that a railroad cannot be valued solely by considering original cost. They call attention to the fact that the commission is required to report 'value' and not original cost only; that the commission is ordered to ascertain original cost along with cost of reproduction new, reproduction less depreciation, and other elements of value, if any; that the language used is tantamount to a declaration that original cost is not the sole basis of value, but only one element, and that no amount of exposition can alter the plain intent of the statute which the commission is called upon to administer and which is the only source of its power.

### Fairness Lies Between Extreme Views

"The decision of the commission in the O'Fallon case has been challenged in the District Court at St. Louis, and in due time, unless some unexpected procedural or jurisdictional impediment develops, we may expect the case to be reviewed by the Supreme Court. Earnest and thoughtful students of the valuation problem must regret that certain of its phases have taken on so strong a tinge of partisanship. Matters of this kind involving grave questions of public policy call for tolerance and concessions. It would seem to be quite unlikely that the courts will recede from a position which has been deliberately and repeatedly announced. Furthermore, in the light of familiar considerations, some of which have been suggested in this paper, it would appear that the effect of advanced price levels cannot be ignored without working serious injustice to the owners of railroad property with consequent impairment of the power to attract new capital to the enterprise, an end deemed desirable by everyone. On the other hand, it is unreasonable to contend that railroad valuations should be measured by peak prices prevailing in abnormal years which are not in fact indicative of what the level of costs will probably be over a reasonable period of years.

Furthermore, there is force in the suggestion that extreme values could not be used, even if allowed, in this age of potential substitutes for rail transportation, and under economic conditions that prevail in the United States. Somewhere between the views of the extremists lies a mean which represents a fair and reasonable solution of the question. It is possible to reach this desirable result by litigation, but that end is far away. In the meantime, while litigants struggle in the courts, precious time will be lost, ill feeling will be engendered, business will be unsettled and other important matters will be neglected. Could not something be accomplished if sane and patriotic men, as are the leaders of thought on both sides of this question, could come together with a fixed purpose to agree on some basis of settlement that will give due, but not undue, consideration to modern cost tendencies? If this issue as between the present and the past could be settled, other grave problems would remain. We would still have to struggle with depreciation, the question of single sum value versus the rate base and many other less conspicuous issues, all of major importance, which are outside the scope of this modest paper.

"But the effect upon public sentiment of a settlement of this one widely discussed question which is of such a character as to lead to general debate would be most salutary."

# J. E. Taussig Praises Work of Traveling Engineers

*President of the Wabash addresses Chicago convention—*
*Three committee reports read at opening sessions*

ABOUT 400 members and guests of the Traveling Engineers' Association met in annual convention at the Hotel Sherman, Chicago, September 13 to 16 inclusive. The opening session on Tuesday morning was devoted to the consideration of a report on "More and better utilization of locomotives," presented by Chairman J. M. Nicholson, fuel conservation engineer of the Atchison, Topeka & Santa Fe. On Tuesday afternoon the subject of "Recommended practice of air brake train handling" was brought before the convention in the form of a committee report presented by Chairman J. P. Stewart, general supervisor of air brakes of the Missouri Pacific, and on Wednesday morning, an unusually well prepared and valuable report on the "Effect of water treatment on locomotive operation," was presented by Chairman W. A. Pownall, mechanical engineer of the Wabash. The feature of the Tuesday morning session was an address by J. E. Taussig, president of the Wabash.

### Mr. Taussig's Address

Mr. Taussig was introduced by J. B. Hurley, president of the association, and general road foreman of engines and fuel supervisor of the Wabash. In his address Mr. Taussig dwelt at some length on the efforts of the railroads to create a favorable public sentiment and showed how traveling engineers, by definite and praiseworthy endeavors to improve operation, have contributed substantially to this end. He said that the success of the railroads in laying their cards on the table, taking the public into their confidence and giving publicity to railroad problems and accomplishments, is shown by the almost complete absence of adverse press comments formerly so frequent. He indicated that there has been a change in attitude of railroad men themselves who have learned to see through the public eye, anticipate the needs of the public and provide better service. It is not only the railroad men in direct contact with the public who influence public opinion, but all those whose work affects in any way the character of the service rendered and Mr. Taussig said that the Traveling Engineers' Association, by living up to its motto "To improve the locomotive engine service of American railroads" will help materially in still further improving the attitude of the public towards the railways.

Mr. Taussig called attention to the need of the proper handling of air brakes at station, water, and other stops in order to prevent damage to equipment and lading of freight trains, or objectionable rough handling of passenger trains. He emphasized the need of reliable service, saying that one locomotive failure may do much more harm than can be overcome by thousands of dollars worth of advertising or other publicity work.

The good work of the Traveling Engineers' Association in promoting safety was also commented on by Mr. Taussig. Referring to smoke abatement, he said that the railroads have accomplished more to help solve the smoke problem in large cities than any other individual industry and that the traveling engineers deserve a large share of the credit for such work as has been done. Mr. Taussig closed his address with an appeal to the traveling engineers to exercise their best judgment in the selection and training of engine crews, teaching them loyalty to their respective roads and encouraging in them a keen desire for still better standards of locomotive performance.

### Report on Locomotive Utilization

In this report, read by Chairman J. M. Nicholson, the committee outlined the fundamental requirements for securing more intensive use of locomotives and illustrated the report with three interesting charts showing the operating results secured on about 30 individual roads from 1923 to 1927 as regards (1) gross ton miles per freight train hour, (2) miles per active freight locomotive per day and (3) miles per active passenger locomotive per day. These charts, based on statistics issued through the American Railway Association, indicate in a striking way the improvement which is generally known to have taken place in these three measuring sticks of railroad operation in the past four or five years.

The report points out that formerly locomotives were idle approximately two-thirds of the time but that now "many railroads are making from 11,000 to 12,000 miles per month per active passenger locomotive, and from 5,000 to 6,000 miles per active freight locomotive by operating extended locomotive runs and giving careful attention to reducing the non-productive time to a minimum. In securing this mileage per active locomotive, the 24 hours of the day is divided into approximately 12 hours' productive and 12 hours' non-productive time. Further sub-division of non-productive time is divided into approximately eight hours for mechanical attention and four hours for transportation delay awaiting trains.

### Maximum Use with Facilities at Hand

"With ideal facilities for maintaining and turning power, it is a simple matter to speculate on what may be done in the way of turning power to secure a greater utilization, but the question of importance is how close may the maximum utilization be approached with the facilities now at hand. The character of business, type, and size of power, terminal facilities, location of terminals, schedule of trains, quality of boiler feed water, quality of fuel, and profile of road are important factors which vary on different divisions and on different railroads, and have a bearing on the utilization that may be secured. These conditions make it necessary that all railroads analyze their own operation and conditions to satisfy themselves that they are getting the greatest possible utilization of locomotives."

The committee called attention to the importance of adequate machine tools and other facilities at terminals, also the provision of repair forces organized where possible on a 24-hour basis so that locomotives which need conditioning operations can be repaired and returned to service with the least loss of time. The value of intelligent control of motive power use by local and division

supervisors was emphasized. Regular reports, showing the average miles per active locomotive per day in all three classes of service, as well as information regarding the detail distribution of non-productive time, were said to be absolutely essential to this form of intelligent control.

The committee expressed the opinion that frequent exchange of information regarding power requirements and trains to be run is important since greater utilization of locomotives can be secured if roundhouse foremen know that certain locomotives in their terminals will not be used for 12 or 15 hours and this time will be available for repairs which might otherwise require holding locomotives out of service on the next trip.

Regarding boiler washing, the committee said, "On many railroads it is necessary to wash boilers after each trip, or in some cases each round trip. The time required to wash boilers is usually the governing factor in time required to turn locomotives, which makes it important that this time be reduced to a minimum. Roads that have good water conditions, which result in less frequent boiler washing, may be expected to maintain a greater utilization of locomotives than roads operating in bad water territories."

An appeal for more intensive use of switching power was made as follows: "A more and better utilization of yard switch power is deserving of study to determine whether the greatest amount of service is being secured from the locomotives assigned. There are yards on many railroads where switch locomotives assigned average 16 hours' service out of each 24 hours, and as far as is practical, switch locomotives should be worked in the yards continuously during the tour of duty of two or three switch engine crews."

The committee closed its report with the following comments regarding unnecessary stops, roadway equipment and the need of individual study of the requirements by each railroad.

"The delay to trains enroute over a division must be given careful thought to avoid every unnecessary stop. As far as possible trains should be run at the time of day when the least interference will be encountered. The leaving time of trains at terminals should be anticipated and the locomotives ordered and furnished promptly at the designated time. It is important that locomotives move from the enginehouse to the train yard, and from the train yard to the enginehouse with the minimum delay to locomotives, as well as the minimum delay to yard operation.

### Roadway Facilities Vital Factor

"The roadway facilities have an important bearing on the number of hours required to move trains from the initial to final terminals. Among the most important of these are the location of fuel and water stations, efficient blocking of trains, proper length of sidings, double track, facing point cross overs, adequate signaling, lap sidings, remote control switches, etc. With the establishing of extended locomotive runs, it is desirable to have fuel, water and sand facilities on the main line at intermediate terminals where such facilities will avoid having to take locomotives to the roundhouse for this attention. Provisions should be made to allow these facilities at intermediate terminals where such facilities

On the Southern Pacific

will avoid having to take locomotives to the roundhouse for this attention. Provisions should be made to allow these facilities at intermediate terminals to serve the terminal as well as the main line.

"Any program which is worked out to increase the utilization of locomotives must give the greatest number of hours of productive service or mileage per month with the minimum terminal time undergoing repairs and delay awaiting trains. The hours of service or mileage of locomotives must be made to produce the maximum of useful work in order to secure the greatest return from the investment. A study of the operating conditions of each railroad may facilitate the movement of a considerably increased business without additional expenditure for locomotives or facilities."

### Discussion

In discussing this report, D. L. Forsythe, general road foreman of equipment of the St. Louis-San Francisco, called attention to the notable performance of Frisco Engine 4100 in completing two round trips in regular freight service between Kansas City and Birmingham, or a total of 2,940 miles with the same fire, as reported on page 342 of the *Railway Age* of August 20. A number of questions regarding this run were asked by the members and answered by Mr. Forsythe, who said that the Frisco is also securing intensive use of switching power, having 220 crews which work on two and three shifts. D. I. Bergin, Wabash, complimented the committee on its report and said that traveling engineers should study and become more familiar with transportation problems, also keep the engine crews apace mentally with the improvement in modern locomotives.

Robert Collett, fuel supervisor agent of the St. Louis-San Francisco, said that the first long run on the Frisco was made 22 years ago and that what has been accomplished since that time has been made possible largely by the intelligent co-operation of the traveling engineers. He said that enginemen are interested first, in safety; second, in their schedules; and after that, possibly, in the intensive use of locomotives, but he has found them willing to go along and all work together in the interest of improved service. James Fahey, traveling engineer of the Nashville, Chattanooga & St. Louis, said that with proper coal there is no mystery about keeping locomotive fires indefinitely and that in one case a Pacific type locomotive on his road was operated 30 days without once using the dump grade. W. L. Robinson, superintendent of fuel and locomotive performance of the Baltimore & Ohio, said that nothing is more important than getting greater utilization out of locomotives. He called attention to the charts in the committee's reports and mentioned the possibility of drawing incorrect conclusions by comparing performances on different roads, owing to the different physical conditions. Some roads, most carefully operated, cannot make the showing in gross ton miles per train hour, or miles per active locomotive per day, as some other roads owing to physical limitations. The number of branch lines, for example, has an important bearing on daily locomotive mileage. A great deal of time was given to the discussion of that part of the committee's report relating to more intensive use of switching power, and the general conclusion was that it is entirely practicable to keep switchers in 24-hour service, a practice now being followed by a number of roads and resulting in marked economies. No objections to this practice, on the grounds of mechanical maintenance, keeping the fires, or daily inspection to meet the I. C. C. requirements have proved insurmountable.

# *Looking Backward*

## Fifty Years Ago

Probably the fastest run for any considerable distance ever made on a railway in America was that achieved on the Canada Southern on September 15, when the distance between St. Thomas and Amherstburg, Can., 111 miles, was covered in 109 minutes. One mile was made in 54 seconds, 70 miles an hour.—*Railway Age*, September 20, 1877.

The Georgia Constitutional convention meeting at Atlanta included in a proposed document a measure fixing uniform freight and passenger tariffs. The price of all freight carriage can be determined by multiplying the number of miles by the rate per mile. Railroad lobbyists have announced their intention of opposing the ratification of the new constitution.—*Chicago Railway Review*, September 1, 1877.

With nearly 80,000 miles of railways now in operation in the United States, we are accustomed to say that the country is "covered with a network of iron." Though the average for the nation is one mile of railway for every 40 square miles of territory, it seems probable that the average will eventually be 16 miles of railway for every 40 square miles of territory east of the Rocky mountains. This would require the construction of some 200,000 miles of line in the eastern half of the United States alone.—*Railway Age*, September 20, 1877.

## Twenty-Five Years Ago

The Richmond-Washington Company, which was formed in September, 1901, by the consolidation of the Richmond, Fredericksburg & Potomac and the Washington Southern to provide a common line for the Atlantic Coast Line, the Baltimore & Ohio, the Chesapeake & Ohio, the Pennsylvania, the Seaboard Air Line and the Southern, between Richmond, Va., and Washington, D. C., has announced its intention of double-tracking the entire line between those two cities.—*Railway and Engineering Review*, September 20, 1902.

Unusual interest attaches this year to the annual report of the Chicago, Milwaukee & St. Paul because of the increase in the dividend rate on the common stock determined upon last week. After paying 5 per cent per annum from 1897 to 1900, the semi-annual declaration was raised to 3 per cent last year. The present distribution is 3½ per cent half yearly and ½ per cent extra, making the total division for 1902, 7 per cent. The balance sheet of the St. Paul shows that in financial strength it has few if any rivals.—*Railway Age*, September 19, 1902.

## Ten Years Ago

A strike of freight handlers called last week at Kansas City, Mo., has affected practically all of the lines entering that point. The chief demands of the men are recognition of their union, a 35 per cent increase in wages, an eight-hour day, a six-day week and time and one-half for overtime. Three thousand three hundred striking mechanics on the Boston & Maine returned to work on September 9, after it had been agreed to raise wages 5 cents per hour, the request for an additional raise of 3 cents to be arbitrated.—*Railway Age Gazette*, September 14, 1917.

"We are moving away from government ownership of railways in the United States, and developments since this country entered the war have made its adoption less probable," states C. H. Markham, president of the Illinois Central, in a letter answering an interview given by E. P. Ripley, president of the Atchison, Topeka & Santa Fe, expressing the belief that government railway ownership is highly probable. "I believe that the more intelligent part of the public is familiar with the fallacies of the reputed economies of government operation and that it will see that government ownership is not only unnecessary but highly undesirable," Mr. Markham said.—*Railway Age Gazette*, Sept. 14, 1917.

# *Communications and Books*

## Prior Applications of Arc Welding in Bridge Strengthening

BOMBAY, India.

TO THE EDITOR:

I have read with much interest in your issue for June 18 the account of the strengthening of the Chicago Great Western bridge over the Missouri river by electric welding. The strengthening of the Leavenworth bridge by means of arc welding is not, however, the first application of this method, either to road or railway bridges. In the issue of "Indian Engineering" of October 30, 1926, an account is given of the repair of the Princess bridge, Melbourne (a road bridge 50 years old) by means of "Quasi-Arc" electric welding.

An earlier application of the method to railway bridges was made under my direction when some girders of 20-ft. clear span, which were required in a hurry for the Bassein bridges, were cut out of old girders which, while they were of sufficient strength to take the bending moments, were deficient in flange rivet resistance. The deficiency was made up by arc welding the vertical legs of the angles to the web plate as suggested in your editorial. During November and December, 1926, I worked out a scheme for the strengthening by arc welding of some 420 spans of 60-ft. fish-bellied plate girders and 90 other spans of 30 ft. These girders were deficient in flange rivet, web shear and bending moment resistance. This method of strengthening is now under the consideration of our consulting engineers in England.

H. PARRY JONES,
Deputy Chief Engineer, Bombay, Baroda & Central India Railway.

## Whistling to Save Steam

INDIANAPOLIS, Ind.

TO THE EDITOR:

By all means let us have a committee of Morse telegraphers or ex-telegraphers to give us the right dope on the use of the locomotive whistle at grade crossings, as suggested in your columns on September 3, page 455. I have had a mild grudge against the telegraph fraternity for several years on account of this two-long-and-two-short signal, for I hold them responsible for having had that combination introduced on American railroads. Years ago, when one single blast, of a length of two to four seconds, was the crossing signal everywhere, everybody was just as happy as now, and it was only the childish notion of some operator-innovator that gave us the change.

Telegraphers will back up the plea for a three-second or two-second signal. As has been stated in your columns, the signal (— — – –) is exactly equal to *"t t e e"* in the telegraphers' alphabet, and any operator will tell you that it is absurd to take more than three seconds to make that combination.

Another important reason for reforming our whistle practice is the need of economy—of saving coal. The statement in the *Railway Age* of May 21 last, page 1513, that the Union Pacific saves $1.15 per locomotive per day by improved whistling, is one that no road can afford to overlook. It reminds us of what a great quantity of steam is used up because of our careless habits. Some time ago, the general superintendent of a large road, west of the Mississippi, in lecturing his enginemen concerning correct whistling, reminded them that the steam used in whistling cost that road $5,000 a month. Is it not a plain duty to reduce that expenditure by all legitimate means?

*How much* saving could be made by limiting each "t t e e" signal to three seconds? That is a question worth considering. The mention of "$5,000 a month" does not present a very definite appeal. What is the actual length of the signal in general practice? Most of the discussion thus far has referred mainly to those roads where very excessive whistling is tolerated, perhaps commanded; where the blast is often continued from whistling post to crossing. But here is a definite figure: one large road (which does not favor the nine-second rule or any outlandish practice) summarizing hundreds of observations on its enginemen, found that the average length of the crossing signal, from the beginning of the first blast to the end of the fourth blast was seven seconds. To cut that in two—make it 3½ seconds—apparently would save $2,500 a month on a road like that just referred to—or $30,000 a year.

It will be argued that if the signal is shortened it ought to be given twice; very well, give it twice. A decided saving is still easily attained, for *two* seconds is ample time for making a good signal. And, as has been said repeatedly, two or three such short signals, given at, say, five-second intervals, have a better effect than one long one.

R. H. A.

## Books and Articles of Special Interest to Railroaders

*(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)*

### Books and Pamphlets

*Annual Index: The United States Daily, Vol. 1, March 4, 1926-March 3, 1927.* A short-cut to source material for recent history in which ten folio-size pages are required for railway material alone, while other transportation developments such as aviation, motor traffic and the doings of the I. C. C. have an interesting amount of space also. 180 p. Pub. by U. S. Daily Publishing Corp., Washington, D. C., $5.

*Federal and State Laws Relating to Weights and Measures. Third Edition,* revised by William Parry. Railroaders and others who have puzzled over the intricacies of when a bushel is what and where and similar problems will be grateful for the exact information in this book. 976 p. Pub. by U. S. Govt. Print. Off., Washington, D. C., $2.30

### Periodical Articles

*Grade Crossings—The Money Value of a Car-Minute,* by F. Lavis. Discussion of economic losses due to delays at such crossings, the value per car-minute being considered separately for trucks, smaller commercial vehicles and pleasure cars at grade crossings of highways with other highways. Annals of the American Academy of Political and Social Science, September, 1927, p. 172-177.

*The Place of the Motor Truck in the Modern City Plan,* by B. F. Fitch. "Trucking of Freight," p. 203-205. Annals of the American Academy of Political and Social Science, September, 1927, p. 200-206.

*Transportation.* An historical series, beautifully illustrated, that gives an outline of railway history, development of freight and passenger carrying vehicles from drags to airplanes through the various stages of road and railway equipment, and early experiments with flight. Oil-Power, December, 1926, January, 1927, May-August, 1927.

*A World Map on Equal-Area Base,* by Dr. Helen M. Strong. Describes and illustrates the map developed by the Bureau of Foreign and Domestic Commerce and the Coast and Geodetic Survey that is better adapted for presentation of commercial information than the Mercator. "Routes by way of air, railroads, and water are approximately true to scale, so a comparison can be made between their lengths." p. 646. Commerce Reports, September 12, 1927, p. 645-647.

# *Odds and Ends of Railroading*

Lady Nicotine, with emphasis on the "Lady," has won another victory, this time on the Northwestern Pacific. Women commuters are now permitted to smoke on the upper deck of the N. W. P. ferry. This follows the policy which was begun by the Southern Pacific Company some six months ago.

## Inspired Words on Railway Romance

There can be no serious danger of a waning in romantic interest in the British railways. Witness the following editorial eulogy from the pages of the London Times, which is almost as ecstatic as any rhetoric lately penned on recent aërial exploits:

"By Train

"The slight mishap the other day to an engine of the Cornish express, the two front wheels of which left the line within fifty miles of London, will make some people feel as they would if the horse of their fancy slipped and fell, or the best bat on their side must retire hurt just when he had played himself in. The engine itself, declares fancy, must have been bitterly disappointed and abashed, and little consoled by congratulations on its skill in keeping the line with all the rest of its wheels so that no damage was done to train or passengers. It had lost the ecstasy of the run. It must feel as any man feels who has been thwarted of fine work by a silly little mistake. The episode wakes anew the admiration, which the motor-car has not yet killed in all bosoms, for these magnificent monsters of mechanical power. Not to have a look at the engine before starting is to lose a great part of the joy of traveling by train. Enthusiasts on the way to or from Scotland have been known to leave their carriage at a stopping-place in order to see the tired engine taken off, and the fresh one, so docile but so evidently straining to be off and away, coupled on to the hundreds of tons' weight of train which it is to pull. Some men and many boys know the principal engines by name and by class and can identify them at sight. And there are few whom great railway engines do not or could not move to the admiration which almost amounts to affection.

"Since the motor-car became popular travelers have become not less but more conscious of the railway engine's impressive charm and of the pleasure of being borne by its majestic power. They know now what the motor-car cannot do, and what the railway train can. For short journeys the motor-car, which goes direct from door to door, starts when the traveler pleases, and stops nowhere except at his desire, is better than the train. To be bound to catch a certain train, to be dropped at the station, to buy tickets, to get the luggage labeled and put into the carriage, to find a convenient seat, to stop at many stations where one has no desire to get out and a great many people are determined to get in, to change, to wait, to 'alight' (as the railway companies call it) at last, with the bother of the luggage and a drive all over again—these are trials which make short journeys by train exhausting and disagreeable. To most people, a long journey by motor-car is exhausting and disagreeable. After the first hundred miles, all except the enthusiastic driver and the hardiest of passengers begin to find that the heaviest and largest car is small and inclined to bounce, the smoothest road is rougher than the well-metalled track, and forty miles an hour a more alarming speed than sixty miles an hour in the train. The longest 'non-stop run' (to use once more the queer lingo of the railways) to Devon or to Scotland is made easy, by the smoothness of the track and the solidity of the coaches, the comfort of the seats (and third-class seats are luxurious today compared with the old wooden seats of thirty or forty years ago), and still more by the lulling effect of continuous motion, of which the senses are aware though the bones and the muscles are not. Few things are more restful at the beginning of a holiday than a long journey in a swift train, during which the traveler, in his corner-seat facing the engine and controlling the window, does not read, nor even think, but watches the country unroll itself, mile after mile, a moving panorama which Bayreuth itself has never matched nor even approached in Parsifal. And the lulling effect is almost as great by night as by day. A man must be jaded indeed by travel if he does not feel the thrill of adventure in reaching the station at bed-time and settling into his tiny, cosy bed room: the strangeness of going to bed in London, to wake in Scotland. After the adventure, if his nerves be sound and his conscience clear, come hours of care-free sleep, broken perhaps by delightful moments of waking, when, without getting up, he can move the blind aside and look out into the unknown night. Now that we take the train from choice, not as a few years back from necessity, the comfort and the delight of railway traveling are impressed anew upon consciousness; and not the engine only but the whole train is seen in the glow of childish memory and of mature love of ease."

## This Department Is a Depot for Data Like This

Boston, Mass.

To the Editor of Odzanenz:—

Your department is hospitable, I suppose, not only to curiosities, humor, nonsense and fourth-class rhymes, but also to history, and so I want to offer a word on the history of the word "depot."

Seventy-five years ago this word was very common; was used everywhere for railroad passenger station, regardless of the fact that it is appropriate only for a freight house. Countless little villages grew up around "depots" which were built a mile or more from the town. (Some towns, jealous of the new mode of transportation, refused to let the railroad tracks be laid through or near to the central village and the word "depot" became a part of the official name of the village. Charlton Depot and Wendell Depot are well-known post offices of long standing in Massachusetts.)

But though the word came to be universally used, its popularity seems not to have been due to any definite objection to "station." In Bradlee's history of the Eastern Railroad, of Massachusetts, there is a picture of the first station in Salem, with "RAILROAD STATION" emblazoned on its front, but in the text of the work "depot" is the favored word. It seems that the men of that day well knew the appropriateness of "station," yet did not choose to make much use of it.

The Grand Central station, New York City, was Grand Central Depot, when it was opened, in 1871, and the switching engines were lettered "G. C. D." Later the name was Grand Central Station, and finally Grand Central Terminal. The last-named term not only conveys a more accurate meaning, but has a pleasanter sound.

New York thus has set a good example, but it remains to be seen to what extent the example will be followed. St. Paul, Minnesota, not only persists in using "Depot" but in having the name perpetuated in the legal title of the corporation which owns the union station. One objection to the use of this French word is our persistent mispronunciation. It does not seem likely that "daypo" will ever be favored by a majority of our people, even if we use the word for a hundred years longer.

I have been thinking for some time of sending you an argument against "depot" and calling upon everybody to cease using the word, but the occasion which has finally called out this letter gives me pause. I don't know but I shall have to give up in despair and allow myself to be buried under the mountain of modern "literature" now covering our news-stands.

The occasion to which I refer is the announcement, from Detroit, that our newest method of transportation, Mr. Ford's airplane service, is to build a "passenger depot" in or near that city. Who is able to enter a contest with the richest man in the world? Multifarious are the puzzles of our high pressure civilization. And this new "depot" is to have, in the second story, a radio beacon control room and an observation station. Why don't they call it an observation depot?

O. E. Purist.

# NEWS *of the* WEEK

*A Squadron of Electric Locomotives on the New Haven*

THE ST. LOUIS RAILWAY CLUB celebrated the thirty-first anniversary of the founding of the club on September 15. W. G. Besler, chairman of the board of directors of the Central of New Jersey, who served as president of the club in 1897, while a division superintendent of the Chicago, Burlington & Quincy, was the principal speaker.

## Long Island Abolishes Wooden Coaches

The Long Island announces that only cars of steel construction are now used on its lines for the transportation of passengers, the last wooden coach having been disposed of. The company has retired more than 250 wooden cars this year. With the completion of steel passenger cars now being built, the total number of steel cars in passenger train service (including baggage cars) will be 1,428.

## New York Truck Drivers Strike Ends

The strike of union truck drivers in New York, called last week, has ended, with some concessions to the strikers. A $5 a week increase in salary and shorter hours were demanded, of which the wage increase was granted.

The strike directly affected railroads which contract for freight haulage in the Terminal, and others were also concerned by reason of the accumulation of inbound freight at stations.

## Tunneling Record

A new record in tunneling enlargement operations was made during the month of August in the Great Northern's new Cascade tunnel. Crews of A. Guthrie & Co. working in the heading from the east portal completed the enlargement of 1,220 ft. of tunnel to full section in 31 days or at the rate of 39.4 ft. per day. This exceeds the record of 1,060 ft. by the same crews during July and the previous high record of 1,036 ft. made in a 31-day month in the driving of the Rogers Pass tunnel of the Canadian Pacific.

## Pullman Porters Want More Pay Instead of Tips

The Brotherhood of Sleeping Car Porters, claiming to speak for 7,000 porters and maids employed by the Pullman Company, has issued a statement to the press saying it has filed with the Interstate Commerce Commission a petition asking for an investigation of the "practice" by which it says the public is required to pay tips for their services, in addition to the fares paid to the company for its service and the wages paid the employees. The commission has not yet made public the petition as having been officially filed with it, but it is understood that it is based on the ground of the "discrimination" and other violations of the interstate commerce act involved, in that the company "sells its service and accommodations to passengers for the price stated on the Pullman ticket, plus an indefinite amount of gratuity or tip exacted or induced from the passenger by defendant through the pressure of a custom built up and officially confirmed by the defendant."

The company is said to have thereby been enabled to shift to passengers the burden of paying from one-third to one-half the wages necessary for porters to remain in the employ of the company.

## Pennsylvania Holds Track and Field Meet

The seventh annual outdoor track and field meet of employes of the Pennsylvania will be held at Altoona, Pa., September 17. More than 1,400 men and women athletes, the survivors of elimination contests held during the summer in the three operating regions, the Altoona works and the general offices at Philadelphia, will compete for the system championship in the various events. In addition to the track and field contests the program will include tennis, trap shooting, rifle shooting, quoits, horse shoe, golf, swimming and baseball, all of which will be held at Altoona, except the golf tournament, which will be played at Tyrone, Pa. The trials in the track and field events will be on the Altoona Cricket field in the forenoon, and the finals will be started at 1 p. m.

The first of a series of games to determine the baseball championship of the Pennsylvania, will be started at 3:30 p. m., between the Cleveland team, of the Cleveland & Pittsburgh division, champions of the western lines of the system, and the winner of a game yet to be played between the Philadelphia terminal division team and the Philadelphia general office team, for the eastern lines championship. The team winning the Pennsylvania Railroad Championship will play the champions of the New York Central Lines, at American League Park in Cleveland, Ohio, on October 1.

## Controversy Over B. & M. Locomotive Color Scheme

Some weeks ago the Boston & Maine repainted the locomotives handling its "Minute Man," coloring them buff and blue in honor of the Colonial forces in the Revolution. Immediately dissenters arose to set forth the claim that these colors were not those of the uniforms of the Colonial forces, but rather those of the Tories. To these contentions, Vice-President Fort has replied, in part, as follows:

"The colors of the Colonial forces—and of the Minute Men before them so far as the 'embattled farmers' had any uniformity of colors—have been invariably accepted as buff and blue. This is taught in the schools. It has been accepted by the Sons of the Revolution. It was with these facts in mind that we directed the use of these colors in decorating the two big Pacific locomotives used to haul our crack Chicago-Boston train 'Minute Man.'

"The same color scheme of buff and blue had been used previously in the interior decoration of the new observation-lounge-dining cars on the Minute Man.

"Captain H. Ledyard Towle of New York, a color authority of national standing, and director of the Duco Color Advisory Service, was the designer of the Minute Man interiors and was asked to arrange the color plan for the Minute Man's locomotives. It is our understanding that Captain Towle did not take us entirely at our word when we told him of our wishes originally, but turned his

staff to some further research work to develop that buff and blue were the most appropriate colors for the purpose, and to develop also the particular shades of each which would carry out the idea of the Continental colors. . . ."

## Exhibits at B. & O. Exhibition

An elaborate illuminated map of the Baltimore & Ohio, worked out in the ancient manner of two centuries ago, is among the features of interest in the Allied Services building at the "Fair of the Iron Horse," to be held at Halethorpe, Baltimore, from September 24 to October 8.

The map, forty feet in length and thirteen feet in height, will hang under the center of the east wall of the building, in which will be housed exhibits illustrating the major associated services of the railroad. It shows the northeasterly portion of the United States from a point in the Atlantic Ocean to one well west of St. Louis, Mo. The cartograph shows not merely oceans, lakes, bays, rivers and mountains, political divisions of the states and the lines of the Baltimore & Ohio as it covers them today, but also depicts in detail some of the features of the cities which the railroad connects. In New York there are the Statute of Liberty and the new telephone building; in Philadelphia, Carpenter's Hall; in Baltimore, the Washington monument; in Washington, the National Capitol; in Harper's Ferry, John Brown's fort, and so on.

The trains of the Baltimore & Ohio are pictured upon the tracks, while upon the navigable waters are placed all kinds of craft, from the flat-bottomed Mississippi steamboat to the giant trans-Atlantic liners.

Cherubs blow the winds from the four corners, while depictions of the three types of locomotives and a large illuminated compass add interest to the great map. The canvas upon which it is painted was especially woven for it in Holland.

The machinery by which the modern railroad meets the problem of its bookkeeping operations will also be shown. The exhibit will be a cross section of accounting work, starting with modern station equipment and adding to it the work done at headquarters. A payroll unit will also be shown.

## I. C. C. Train Control Questionnaire Conference

Representatives of 93 of the 168 railroads to which the Interstate Commerce Commission recently addressed a questionnaire regarding the status of installations of automatic train-stop and train-control devices and block signals and the results obtained from them, held a conference at Washington on September 8 for the purpose of discussing the interpretation of the various questions and plans for furnishing to the commission the data called for. The meeting was called to order by W. P. Wiltsee, chief engineer of the Norfolk & Western, chairman of the Committee on Automatic Train Control of the American Railway Association, and the morning session was devoted to a discussion of the questions by the railroad men, including signal engineers and other engineering or operating officers. Various questions were formulated to be put to E. H. De Groot, Jr., director of the Bureau of Block Signals and Train Control Devices of the commission, who attended the afternoon session at the request of the roads to answer questions as to the exact nature of the information desired in some cases.

The opinion of the meeting was that separate questionnaires should be answered for each respondent named, although some of the companies operate more than one road.

As to the date as of which the data should be supplied Mr. De Groot said the figures reported should be reasonably accurate as of the date for which the questionnaire is made out. In some instances they can be taken from the annual reports to the commission, but as to signals and train control installations as late a date as possible should be used.

It was decided that all automatic train control or train-stop devices installed and now in operation should be included, even though not installed under the commission's orders.

## A. R. S. M. Elects Officers at Chicago

The Association of Railway Supply Men, at a meeting held during the convention of the International Railway General Foremen's Association, Hotel Sherman, Chicago, September 6-9, elected the following officers to serve during the coming year: President, C. O. Jenista, Barco Manufacturing Company, Chicago; secretary-treasurer, C. F. Weil, American Brake Shoe & Foundry Company, Chicago. The members of the executive committee are: A. N. Willsie, Locomotive Stoker Company; C. M. Hoffman, Dearborn Chemical Company; J. W. Johnson, Pyle-National Company, and R. T. Peabody, Air Reduction Sales Company. Following is a list of the companies which exhibited at the General Foremen's convention together with the products on exhibition and the representatives in attendance:

Air Reduction Sales Company, New York—Oxygen, nitrogen, argon neon, calorene, acetylene, welding and cutting apparatus; Airco National carbide. Represented by B. N. Law, T. M. Hamer, R. T. Peabody, W. Love, J. W. Kenefic and J. Oudhoff.

American Brake Shoe & Foundry Company, New York—Brake shoes. Represented by H. W. Hurst, J. W. Waters, C. F. Weil and F. P. Biggs.

American Locomotive Company, New York—Three-cylinder model, cast steel engine truck, power reverse gear, Flextite steam pipe casing, Economy grease cellars, hand rail columns and pipe clamps. Represented by N. C. Naylor, H. Michaels, A. Haller, R. Brown and W. S. Morris.

American Throttle Company, New York—Multiple throttle. Represented by G. Fogg, R. R. Porterfield, J. Mourne and W. VanMeter.

Armstrong-Blum Manufacturing Company, Chicago—Marvel metal band sawing machine, automatic high-speed saw, high-speed edge hack saw blades. Represented by H. J. Blum.

The Ashcroft Manufacturing Company, New York and Chicago—Steam and vacuum gages, cut-off control gage. Represented by C. L. Brown and C. W. Corning.

The Ashton Valve Company, Boston, Mass.—Safety valves, back pressure steam and air gages, locomotive driving wheel quartering gage, dead weight pressure tester, wheel press recording gage and double ram attachment. Represented by C. Gaston and J. F. Gettrust.

Barco Manufacturing Company, Chicago—Power reverse gears, metallic steam heat car connections, metallic steam, air, water and oil connections between engine and tender, flexible joints for locomotive piping, enginehouses, coach yards, shops and stations, automatic smoke box blower fittings and lubricated and balanced plug valves for all services. Represented by C. L. Mellor, C. O. Jenista, J. L. McLean, W. J. Behlke and T. S. McEwan.

Borden Company, Warren, Ohio—Beaver power drive, pipe die stocks and square end pipe cutters. Represented by V. M. Gaspar.

Bradford Corporation, Chicago—Literature on throttle valves and draft gears. Represented by L. B. Rhodes.

Buckeye Portable Tool Company, Dayton, Ohio—Rotor type pneumatic drills, grinders and frame jaw grinders, sanders and buffers. Represented by W. Gunmere and H. W. Leighton.

Buda Company, Harvey, Ill.—Turbo generators for locomotive lighting and train control, journal jacks and safety self-lowering jacks. Represented by H. P. Bayley and F. L. Gormley.

Colonial Steel Company, Chicago—Literature. Represented by W. E. Thurber.

Crucible Steel Company of America, Pittsburgh, Pa.—Tool steels and tools. Represented by F. Baskerfield and R. D. Fletcher.

Chicago Pneumatic Tool Company, Chicago—Pneumatic tools. Represented by L. F. Duffy and F. O. Duffy.

Consolidated Safety Valve Company, New York—Safety valves. Represented by C. L. Brown and C. W. Corning.

Cleveland Tool Engineering Company, Cleveland, O.—Circular relief tool grinder. Represented by C. W. Mader.

Cleveland Pneumatic Tool Company, Cleveland, Ohio—Pneumatic tools, valves and hose fittings and Bowes hose couplings. Represented by C. J. Albert and B. H. Tripp.

Dearborn Chemical Company, Chicago—Wayside treating plant. Represented by O. H. Rehmeyer, C. M. Hoffman, R. O. Milnes, W. D. Bennett and S. E. Moore.

Detroit Lubricator Company, Detroit, Mich.—Mechanical and hydrostatic lubricators and flange oilers, thermostatic heater and diaphragm check valve for mechanical lubricators. Represented by S. A. Witt, A. G. Machesney, W. B. Drake and C. L. Butler.

Dickinson, Paul, Inc., Chicago—Car jacks, Aeolus ventilators and exhaust heads. Represented by A. E. Engman and J. W. Linsley.

Duff Manufacturing Company, Pittsburgh, Pa.—Car and locomotive lifting jacks, push and pull jacks. Represented by C. N. Thulin and E. E. Thulin.

Edgar Allen Steel Company, Inc., Chicago—Carbon, high-speed and alloy steels. Represented by T. N. Kucher.

Edna Brass Company, Cincinnati, Ohio—Water columns, mechanical lubricators, non-lifting injectors, water glass connections, oil burners for locomotives and feed-water pump boiler checks. Represented by E. O. Corey, H. A. Glenn and F. S. Wilcoxen.

Faessler, J., Manufacturing Company, Moberly, Mo.—Rod bushing rollers. Represented by G. R. Maupin.

Firth-Sterling Steel Company, Chicago—Literature on Blue Chip high-speed steel, special tool and die steels and stainless steel. Represented by Alan Jackman, E. T. Jackman and C. E. Hughes.

Ford, J. B., Company, Wyandotte, Mich.—Wyandotte metal and freight car cleaners. Represented by C. S. Tompkins.

Forster Paint and Manufacturing Company, Winona, Minn.—Represented by H. J. Caswell.

Foster-Johnson Reamer Company, Elkhart, Ind.—Hand expansion reamers and reamer sharpeners. Represented by F. M. Enos and L. Groesel.

Franklin Railway Supply Company, New York—No exhibit.

Goddard & Goddard Company, Detroit, Mich.—Milling cutters. Represented by C. S. Goddard and K. W. Legg.

Graham-White Sander Corporation, Roanoke, Va.—Sanders and sand spreaders, automatic sander for boosters and auxiliary locomotives. Literature on electric locomotive sanders. Represented by W. L. Ranson and W. H. White.

Hancock Inspirator Company, New York—Inspirators, boiler checks, water columns and steam fittings. Represented by C. L. Brown and C. W. Corning.

Hubbard Steel Foundry Company, East Chicago, Ind.—Locomotive crosshead and Victor car and locomotive replacer. Represented by G. W. Lillie.

Hulson Grate Company, Inc., Keokuk, Ia.—Model of Hulson locomotive grates. Represented by A. W. Hulson, J. W. Hulson and P. J. Kaveney.

Hunt-Spiller Manufacturing Corp., Boston, Mass.—Cylinder packing, duplex sectional packing, crosshead shoes, cylinder bushings, floating bushings, valve bushings, valve rings and brake drums for auto buses. Represented by E. J. Fuller, C. L. Galloway and F. W. Lampton.

Independent Pneumatic Tool Company, Chicago—Cut-outs of pneumatic drills and hammers. Represented by I. T. Cruice.

Jones & Lamson Machine Company, Springfield, Vt.—Radial staybolt turning and threading attachment, automatic dies and thread compensator taps. Represented by J. C. Price and G. S. McClellan.

Joyce-Cridland Company, Dayton, Ohio—Railroad jacks. Represented by E. A. Hoffman.

Lunkenheimer Company, Cincinnati, Ohio—Valves, oiling devices and engineering appliances. Represented by H. J. Evans.

Locomotive Firebox Company, Chicago—Litera-

ture on thermic syphons, models and motion pictures. Represented by C. A. Seley, J. Baker, A. A. Taylor, L. R. Pyle, C. M. Rogers, B. E. Larson, A. M. Wheeler and E. J. Reardon.

Locomotive Stoker Company, Pittsburgh, Pa.—Model of D-2 Duplex stoker and Elvin stoker. Represented by E. F. Milbank, V. B. Emrich, J. B. Ball, E. Ryan, A. N. Willsie and T. W. Baldwin.

Madison-Kipp Corporation, Madison, Wis.—Force feed locomotive lubricator. Represented by A. H. Flanagan and F. R. Clark.

Manning, Maxwell & Moore, Inc., New York.—Micro air compressor grinder, Monarch engine lathe, Thompson universal grinder, Grand Rapids tap and drill grinder, Allen staybolt drill and Sheldon portable tools. Represented by R. S. Dean, E. D. Garfield, A. J. Cote, W. Deems, L. A. Gluckler, P. P. Wegener, J. P. Grome, R. D. Gaumond, O. D. Kinsey, H. H. Yerk and H. H. Moar.

McLean-Fogg Lock Nut Company, Chicago—Lock nuts. Represented by J. W. Fogg and J. A. MacLean.

Metal & Thermit Corporation, New York—Locomotive frame welds and rail welds. Represented by H. D. Kelley, W. H. Mocre and C. D. Young.

Miner, W. H., Inc., Chicago—Ideal safety hand brakes, models of freight car draft gears, passenger car draft gears, buffers and bolster center locking pin. Represented by B. S. Johnson, A. E. Biddle, R. Weber and W. E. Robertson.

Nathan Manufacturing Company, New York—Injectors and lubricators. Represented by R. Welsh.

National Malleable & Steel Castings Company, Cleveland, Ohio—Couplers, journal boxes, draft gears, coupler yokes, miscellaneous malleable iron castings and power hand brake. Represented by G. R. Rasmussen, C. H. Krakau and D. Robinson.

National Tube Company, Pittsburgh, Pa.—Represented by T. W. Kelly.

Norton, A. O., Inc., Moline, Ill.—Lifting jacks. Represented by R. J. McKay, C. H. Smith, Jr., and E. W. Hanegan.

Oakite Products, Inc., New York—Cleaning materials for railroad service. Represented by A. H. Green, C. J. Copley, L. B. Johnson, C. A. Feterson, R. E. Wright and D. A. Hearn.

Ohio Injector Company, Chicago—Non-lifting injectors, fire jets, low water alarm, drifting valves, flange oilers and lubricators and boiler check valve. Represented by A. C. Beckwith, F. W. Farnsworth and W. H. Malone.

Okadee Company, Chicago—Locomotive front end hinge, blow-off valve, water glass protector, automatic cylinder cock, tender hose coupler and lubricator. Represented by A. G. Hollingshead, J. S. Lemley, G. P. Dirth, W. H. Heckman, C. W. Ploen, C. G. Learned and M. H. Oakes.

O. K. Tool Company, Inc., Shelton, Conn.—Represented by E. E. Fiege.

O'Malley-Beare Valve Corporation, Chicago—Steam valves, blow-off valves, gage cocks, special locomotive valves and washout plugs. Represented by C. J. Murphy.

Oxweld Railroad Service Company, Chicago—Carbide lamps, welding and cutting apparatus. Represented by G. M. Crownover, A. N. Lucas and I. A. Smith.

Pilliod Company, New York—Baker locomotive valve gear models. Represented by J. H. Cooper, W. H. Bellmaine and Frank Fisher.

Pilot Packing Company, Inc., Chicago—Drifting valves and packing. Represented by R. N. Sinkler and J. Sinkler.

Pyle National Company, Chicago—Train lighting, headlight, train control generators and flood lighting equipment. Safety switches and duplex locomotive distribution valves. Represented by J. W. Johnson, R. L. Kilker, W. Miller, J. A. Amos, W. Ross, W. T. Bretherton, F. Kersten and E. H. Hagensick.

Racine Tool & Machine Company, Racine, Wis.—Shear-cut, cut-off saw and duplex band saw. Represented by M. E. Erskine, J. M. Jones and E. R. Larson.

Railway Journal, Chicago—Copies of publication. Represented by E. C. Cook.

*Railway Age* and Railway Mechanical Engineer, New York—Copies of publications and books. Represented by H. M. Brewer, R. F. Duysters, H. H. Morrison, J. M. Rutherford, H. C. Wilcox and E. L. Woodward.

Reliance Machine & Stamping Works, Inc., New Orleans, La.—"Spee-D" high pressure grease cup and filler fittings for locomotive driving rod lubrication. Represented by G. A. Pettit.

Ridge Tool Company, Elyria, Ohio—Pipe wrenches, vise stands, post and bench vises and pipe cutters. Represented by J. E. Lawrence.

Snap-on Wrench Company, Milwaukee, Wis.—Interchangeable socket wrenches. Represented by C. N. Tennyson.

Standard Form & Equipment Company, Chicago—Pipe wrenches. Represented by N. B. McKeagan.

Standard Stoker Company, Inc., New York—Working model of duPont-Simplex Type B stoker. Motion pictures of stoker operation. Represented by R. Schlacks, C. T. Hansen, H. S. Mann, G. Rusch, A. E. Patterson and F. P. Roesch.

Superheater Company, New York—Exhaust steam injector. Represented by G. Fogg, R. R. Forterfield, R. J. Van Meter and J. Mourne.

Swanson Company, Chicago—Locomotive gage holders. Represented by O. W. Swanson and R. V. Larson.

Timken Roller Bearing Company, Canton, Ohio—Roller bearings for car and locomotive truck journals. Represented by W. E. Albertson, R. M. Ross and W. C. Sanders.

T-Z Railway Equipment Company, Chicago—Represented by J. W. Brewer, G. S. Turner and F. G. Zimmerman.

Union Asbestos & Rubber Company, Chicago—Asbestos packing and insulation. Represented by J. H. Kuhns and W. R. Gillies.

Union Manufacturing Company, New Britain, Conn.—Chucks and chain hoists. Represented by E. I. Stevens.

Viloco Railway Equipment Company, Chicago—Sander valves, bell ringers, rail washer, piston rod and valve stem packing, grease lubricator for piston rods and pneumatic whistle operating valve. Represented by G. P. Dirth, J. S. Lemley, W. H. Heckman, C. W. Ploen, C. G. Learned and M. H. Oakes.

Westinghouse Air Brake Company, Wilmerding, Pa.—M-3 and M-3-A feed valves, Type B automatic air pump cylinder oil cup, centrifugal dirt collector, leakage indicator for 3T test rack, steel valve cages for cross-compound air compressors and Wabco packing cups and gaskets. Represented by E. H. Weaver, J. Holtom, L. M. Carlton, P. H. Donovan and C. P. McGinnis.

## Maritime Rates Dispute to Go to Canadian Supreme Court

In an order and judgment issued this week the Dominion Railway Board at Ottawa dismissed the application of the Canadian National for a rescision of the board's order for joint rates through St. John, N. B., and Ste. Rosalie Jct., Que., on westbound traffic originated in the three maritime provinces. It is expected that the Canadian National, as was intimated at the hearing last week by their counsel, Eugene Lafleur of Montreal, will appeal from this judgment to the Supreme Court of Canada, as the railway contends that the board had no jurisdiction to issue the order for which the railway had applied for rescision.

Chief Commissioner H. A. McKeown, in his judgment, says, in part: "The question of the St. John and Ste. Rosalie gateways has been regarded by the eastern maritime provinces as one of great importance inasmuch as it provides a competitive route to the west, and from the time when the construction of the Canadian Pacific gave rise to the advantages of such competition, or at any rate from the date on which this board began to function, now over 23 years ago, rates have been continued under which such competition was possible. About seven years ago gradually the curtailment of such privilege began and has been followed up by the Canadian National, until it has now culminated in a condition which is depriving the people of the three maritime provinces of a competitive route and the many advantages arising therefrom."

In his concluding paragraph the Chief Commissioner says: "It is apparent that if the board should adopt the view that the reasons in support of the order which is now challenged have ceased to exist and for that cause the order should be rescinded the necessity for adjudicating upon the question of jurisdiction in regard thereto would be removed. But the board has not come to that conclusion. Any decision which the board may make upon the question of jurisdiction is open to appeal to the Supreme Court of Canada, and proceedings are now pending to determine this important matter. In whatever way the board might view its powers in this respect an appeal by one part or the other to this dispute would likely be taken, in order that this may be conclusively determined. It therefore seems to be the proper course to leave this crucial question in all its phases to the Supreme Court of Canada for decision. If it should transpire that the passage of the Maritime Freight Rates Act (at the last session of Parliament) has denuded the board of the jurisdiction in this respect bestowed upon it by the Railway Act its above pronouncement upon the other questions argued in this application becomes of no effect. On the other hand, if full jurisdiction still abides within the board to dispose of this motion decision to that effect by the Supreme Court makes further application to this board unnecessary under present circumstances, since all other matters properly within the board's jurisdiction touching this application are hereby determined."

Assistant Chief Commissioner S. J. McLean in a separate and brief judgment comes to virtually the same conclusion.

The contention of the Canadian National in this case, as stated by its counsel, Eugene Lafleur and Alistair Fraser, at the hearing before the board, is that freight originating in the maritime provinces and moving westward to other points in Canada should receive the 20 per cent rate reduction provided for in the legislation of the last session of the parliament only when that freight passes through Diamond Junction and Levis, Que. The board had ordered and now sustains the order that freight originating in the maritimes on the Canadian National should enjoy the same through rates westward, when taken from the Canadian National at St. John or Ste. Rosalie Junction (70 miles east of Monreal) by the Canadian Pacific. In other words, the board ordered the two roads to publish joint rates through the two points mentioned. The Canadian National has refused to do so and has already appealed to the Supreme Court of Canada, on questions of law, contending before that body that the board had no power to order joint rates to enable the Canadian Pacific to share the haul. The Canadian National also urged the board to rescind its order to save the expense of an appeal to the Supreme Court or possibly the Privy Council in England.

The maritime provinces and the Canadian Pacific lined up to have the order stand. Premier J. B. M. Baxter, appearing for his province of New Brunswick, argued that rescision of the order would rob his people of the benefits of a competitive railway service.

**Berlin-Vienna Express at Dresden, Germany**

# Traffic

The Traffic Club of Minneapolis (Minn.) is to hold its fifteenth annual banquet on Thursday, December 1.

The semi-annual meeting of the Associated Traffic Club of America will be held in Richmond, Va., on October 25 and 26.

The hearing in connection with the Interstate Commerce Commission's investigation of off-track station and constructive receipt and delivery of freight at St. Louis, Mo., and East St. Louis, Ill., assigned for September 12 at St. Louis before Examiner Harry C. Ames, has been postponed to a date hereafter to be fixed.

The New England railroads have filed with the Interstate Commerce Commission an answer opposing the petition filed by the Pennsylvania and its affiliated lines for a modification of the commission's recent order in the New England divisions case, relating to the divisions on coal. The petition asked to have eliminated from the order the provisos requiring that where rates on anthracite or bituminous have been changed since 1923, the increases or decreases shall be shared pro rata. If the trunk lines should be successful in persuading the commission to strike out the provisos, the New England lines say, "they would without doubt attempt to shoulder on to the New England carriers all reductions, future as well as past," and the result would be a depletion of the earnings of the New England carriers, which would not improbably wipe out more than the entire increase in their coal revenues accorded by the order of June 14.

## Grape Shipments Less Than Last Year

Grape shipments this year to and including September 7 totaled 10,206 carloads as compared with 15,128 carloads for the same period of 1926. The smaller number of cars shipped is due to the later ripening of the crop this year and not to a decline in the amount of grapes grown as the Department of Agriculture estimates the crop this year as 2,316,000 tons, as compared with 2,114,000 tons in 1926. The Car Service Division estimates that 80,000 carloads will be available for shipment as compared with 63,549 carloads last year.

## Freight Claim Payments Increase

Freight claims paid by Class I carriers for the first six months of 1927 totaled $19,820,223, as compared with $19,084,004 for the same period of last year, which is an increase of $736,219 or 3.9 per cent. This is the first time in seven years that the loss and damage account has shown a tendency to maintain an upward trend. Increases are shown in the four major causes, unlocated damage, which totals $4,041,357 or 20.4 per cent of the total payments; rough handling, which amounts to $4,961,082 or 25.1 per cent of the total; delay, which amounts to $1,983,766 or 10 per cent of the total; and concealed damage, which amounts to $1,360,020 or 6.9 per cent of the total. These increases are reflected prominently in shipments of fresh fruits and vegetables, livestock and furniture.

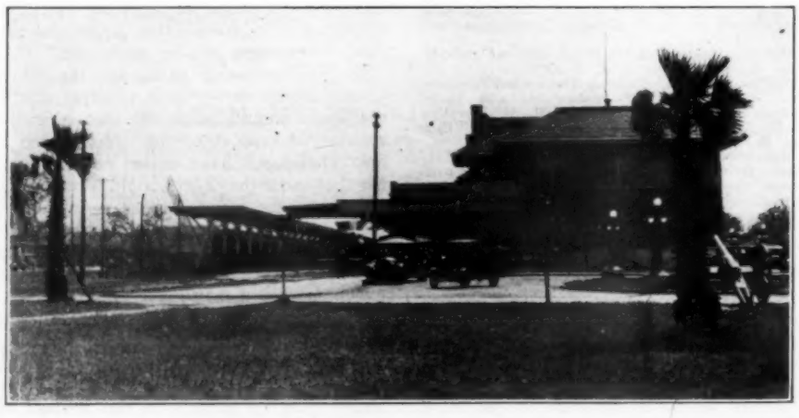
## Additional Joint Rates on Coal Recommended

The permanent establishment of joint rates and through routes on prepared sizes of bituminous coal from mines in the southern fields of Virginia, West Virginia and eastern Kentucky to destinations in New England and the Middle Atlantic states was recommended to the Interstate Commerce Commission in a report made public on September 10, proposed by Examiners Koch and Harris in No. 15,006. This proceeding was originally instituted by the commission as an inquiry into rates, charges, regulations and practices governing the transportation of anthracite coal, but it developed into one relating to rates on substitutes for anthracite, and the commission ordered the temporary establishment of joint rates and through routes on bituminous coal to various destinations in New England and other eastern points which have now expired.

Numerous consumers and operators then asked that the rates be made permanent and the proceeding was reopened for further hearing. The commission should find, the examiners recommend, that the rates from mines in the northern fields of Pennsylvania, Maryland and northern West Virginia to New England and the Middle Atlantic states for track delivery are not unreasonable or otherwise unlawful. They also recommend a finding that tidewater rates from the northern fields to New York, Philadelphia and Baltimore, and from the southern fields to Hampton Roads, should be found not unreasonable or otherwise unlawful except that the transshipment rates from mines in the northern fields to New York for export and coastwise movement should be found unduly prejudicial to the extent that they exceed the contemporaneous rates to Philadelphia by more than 25 and 40 cents and those to Baltimore by more than 32 and 37 cents, respectively.

## President Shows Interest in Proposal that Railroads Operate Ships

The man at the White House who talks to the newspaper correspondents for President Coolidge, but who is not supposed to be directly quoted, was asked by the newspaper men on September 13, on his return from a vacation at Rapid City, to comment on the suggestion made by Edward N. Hurley, formerly chairman of the Shipping Board, that it would be desirable for railways to engage in the ownership and operation of ships in foreign traffic. It was reported that he displayed considerable interest in the suggestion, especially as one coming from Mr. Hurley, and thought that the efforts to develop an American merchant marine might be considerably stimulated if railroads owned ships and were therefore interested in seeing that more of the foreign commerce of the country were shipped in American flag vessels. He thought, however, that the subject would require careful consideration and was not prepared to discuss it very definitely, but he indicated that one of the obstacles to the building up of a merchant marine is the indifference of shippers and exporters and importers in failing to insist that their shipments be transported in American ships and also indifference on the part of railroads that have traffic relations with foreign lines and agencies. The discussion started in relation to amendatory legislation to "permit" railroads to own steamship lines, and the President was represented as believing that it would be well to make a comparison of conditions before the passage of the Panama Canal act and those afterward, but it was suggested that the prohibition in the Panama Canal act is against railroads owning ships with which their rail lines might compete. Bills have been introduced in Congress on several occasions in connection with proposed marine legislation to amend Section 9 of the Panama Canal act to make it clear that it shall not apply to the ownership of ships in foreign trade.



Louisville & Nashville Station, Pensacola, Fla.

# Foreign

## French Road's Results in 1927

Results of operation of the French railroads in 1927 indicate a decline in traffic and reduction in revenue despite an increase in rates of nearly 30 per cent which were put into effect in August, 1926. It is believed that the falling off in traffic is due to the decline in domestic business, a decline which is expected to continue in view of the reduction in the coal and iron output, and the reduction of stocks of raw materials for manufacture with few imports being made to meet the depletion. Car loadings are averaging about 17 per cent lower than a year ago.

## Turkey Completes Angora-Kaisaria Railway

The Angora-Kaisaria (Cæsarea) Railway, Turkey, was completed on May 12, according to Vice-Consul R. R. Jordan, Constantinople. This railway was begun following the voting of the appropriation for the line in March, 1924. Its construction has been largely, though not wholly, in the hands of Turkish engineers and workmen, backed by government capital, and it is this fact that has aroused so much popular enthusiasm over the successful completion of the project. The length of the line is 380 kilometers, and 9 bridges and 33 tunnels have entered into its construction. According to the press, the estimated cost of the line was between £T26,000,000 and £T30,000,000.

## Russian Railway Notes

The following recent developments have been reported by the Austrian-Russian Chamber of Commerce:

The Donetz Railway is equipping its freight cars with the new airbrakes invented by a Russian engineer. The tests of these brakes are reported to have given excellent results and cars will gradually be equipped with them.

The Austrian Minister of Trade has asked the Soviet Commissariat of Communications to open negotiations for a direct freight communication between Austria and the U. S. S. R.

High water in the Angara and Irkut rivers in the latter part of June put the Trans-Baikal district of the Trans-Siberian Railway out of commission for several days. Several bridges and embankments were washed away. The water was the highest known.

Sixty-five locomotives, type series M, will be erected at the Putiloff Works in Leningrad.

The Leningrad Putiloff Works has commenced the erection of the most powerful freight locomotive in Russia. It will be series Z. It can handle a train of 1,365 tons at a speed of 40 miles an hour. Eight will be completed within three months.

Trials of two Diesel type and one of the series M were made the latter part of June on the Moscow-Kursk Railway. The first type handle a train of 1,000 tons at a speed of 20 miles in a satisfactory manner. It is proposed to erect one for passenger service soon.

On July 14 one of the Diesel type locomotives arrived in Baku on a trial trip from Moscow. It left Moscow on July 6 with a train of 41 freight cars, two passenger cars and dynamometer car. The entire trip of 1,830 miles was made successfully.

## Improved Position of British Railways

The interim-dividend announcements made at the end of July, 1927, by the "Big Four" group of British railways is regarded as satisfactory and reflect some improvement in the railways' position as compared with last year according to Trade Commissioner William M. Park, London. Two companies, the London, Midland & Scottish and the Great Western, will pay larger interim dividends; the Southern maintains the same position as a year ago; and the London and North Eastern is the only railway to pass the half-yearly dividend period without making any payment to stockholders.

The London, Midland & Scottish announced an interim payment on the ordinary stock of 2 per cent. This was the most the market had anticipated, and the announcement of the dividend was followed by a rise in the price of the stock from 71¼ to 73. This dividend compared with 1½ per cent for the first half of last year, which was followed by a final distribution at the same rate, making 3 per cent for the whole of 1926. In order to pay that, however, the company took £5,738,000 from reserves, and also appropriated £1,449,925 representing profits on investments, sales, and interest suspense account. For the first six months of 1925 the dividend was 2½ per cent, and for the whole of that year the distribution was made up to 6 per cent, a sum of £625,000 being taken from reserves.

In the half year ended June, 1927, the company recorded an increase of £5,281,000 in gross receipts, as compared with the same period of 1926 when the general strike and the coal strike seriously curtailed railway earnings. Compared with the first half of 1925, the gross earnings registered an increase of £10,000.

The dividend to be paid by the Great Western Railway is 2¾ per cent, as against 1½ per cent for the first half of 1926. This announcement emphasizes the relatively favorable financial position occupied by the Great Western group, as the company is paying the 2¾ per cent without the necessity for drawing upon reserve. In the past two years the Great Western has found it necessary to take from the reserves only £3,000,000, as compared with the large sum of £9,000,000 and £11,000,000 which the London, Midland & Scottish, and the London & North Eastern, respectively, have had to withdraw from reserve funds.

Gross traffic receipts of the Great Western during the first six months of 1927 increased by £545,000 over those of the 1925 period, the percentage gain being greater than that of any of the other lines. Comparison is made with the more normal year 1925, rather than 1926, when all the railway companies were disastrously affected by the strikes and general industrial unrest.

The Southern is paying the full half-yearly dividend on its 5 per cent preferred ordinary stock; no distribution will be made on the defererd stock until the end of the year.

The dividend was 1¼ per cent for 1926; but as this and the preferred ordinary dividend together called for £1,772,958, with an available profit of only £845,958, the company had to draw on its reserves and carry forward to the extent of £927,000.

For 1925, when the deferred dividend was 3½ per cent, the profits were within £212,948 of the amount needed. So far this year the revenues show a decrease of £214,000 from those of two years ago, but are, of course, greatly in excess of the 1926 period.

The London & North Eastern Railway was the only one in the "Big Four" group that paid no interim dividend. It was known that the company's gross receipts for the first half of 1927 had increased by £887,000, and hope was entertained that not only would fixed charges be earned but that a moderate surplus would result and would be available for dividend distribution.

It should be pointed out that the passing of the interim dividend on the second-preference stock does not prevent London & North Eastern stocks from remaining in the trustee class; the determining factor is the dividend paid on account of the whole year. For 1926 the company paid the small dividend of one-eighth of 1 per cent on preferred ordinary stock and nothing on the deferred stock.

To sum up the general position of the railways, as reflected above at the half-year period, it may be stated that they were compelled to adopt extreme caution in their dividend policy despite increased earnings. Although the past half year has been free from industrial trouble, such as faced the companies in 1926, yet the period has been one of readjustment. The evil done by the coal stoppage has lived after it. During the early months of this year the companies were still engaged in using up remaining stocks of imported coal bought at high prices. They also continued to feel the effects of decreased public spending power ocasioned by the industrial depression.

These factors, together with the effects of increasing competition from public and private motor vehicles, largely account for the loss of £3,610,000, or nearly 7 per cent, in passenger receipts as compared with the first half of 1925. On the other hand, freight revenues increased by 7 per cent, owing to the increase in rates by 6½ per cent effective at the beginning of February. Combining freight and passenger earnings, the railways show an increase of £1,291,000 as compared with the first half of 1925.

# Equipment and Supplies

## Freight Cars

THE ILLINOIS CENTRAL is inquiring for two air dump cars.

THE BUFFALO CREEK & GAULEY is inquiring for three hopper cars.

## Passenger Cars

THE CONSOLIDATED RAILROADS OF CUBA have ordered four combination passenger and baggage, gasoline rail motor cars, from the J. G. Brill Company.

THE DELAWARE, LACKAWANNA & WESTERN has increased its order placed with the Pullman Car & Manufacturing Corporation for combination mail and baggage cars from two to three cars. The order for the two cars was reported in the *Railway Age* of May 28.

## Iron and Steel

THE BOSTON & MAINE is inquiring for 300 tons of steel for three bridges.

THE BALTIMORE & OHIO is inquiring for 700 tons of steel for bridges at Middletown, Ohio.

THE ERIE has ordered 125 tons of steel for a bridge in New Jersey from the Bethlehem Steel Company.

THE NEW YORK CENTRAL has ordered 8,000 tons of steel for a passenger station at Buffalo, N. Y., from the Bethlehem Steel Company.

THE MISSOURI PACIFIC has ordered 200 tons of structural steel for blacksmith and machine shops at St. Louis, Mo., from the Stupp Bros. Bridge & Iron Company.

THE PENNSYLVANIA has authorized the purchase of 300,000 tons of steel rail for use in 1928, which will be the largest amount ever ordered in any year of the company's history. The Pennsylvania's annual rail purchases for the last ten years are as follows:

| Year | Ordered | Year | Ordered |
|---|---|---|---|
| 1919.... | 38,000 | 1924.... | 194,000 |
| 1920.... | 119,500 | 1925.... | 120,000 |
| 1921.... | 200,000 | 1926.... | 200,000 |
| 1922.... | 86,000 | 1927.... | 250,000 |
| 1923.... | 138,000 | 1928.... | 300,000 |

## Machinery and Tools

THE CHICAGO & NORTH WESTERN is inquiring for one 600-ton wheel press.

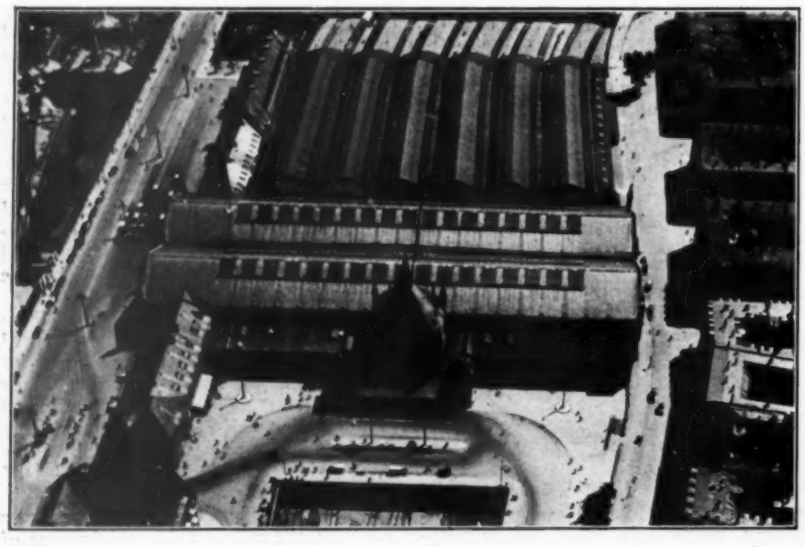
THE ST. LOUIS SOUTHWESTERN has ordered one 290-ton transfer table from the Whiting Corporation.

THE SOUTHERN PACIFIC has ordered a Morris 16 in. by 8 ft. gear head lathe, from the Niles-Bement-Pond Company.

THE CENTRAL OF NEW JERSEY has ordered one 200-ton, four-jack locomotive hoist with a 50-ton drop pit table, from the Whiting Corporation.

## Signaling

THE ALTON & SOUTHERN has ordered from the Union Switch & Signal Company the necessary material for an automatic interlocking at its crossing of the East St. Louis & Suburban Railway at Collinsville Pike, Ill. Color light signals will be used on the electric line, with style B semaphore signals, T-2 smashboards and fixed distant signals on the A. & S. Line. The materials are being installed by the construction forces of the railroad company.



*Ewing Galloway*

**Central Station, Copenhagen, Denmark**

# Supply Trade

**The Cutler Hammer Manufacturing Company** has moved its Cleveland, Ohio, office from the Guardian Trust building to the Guaranty Title building.

**The Hyman Michaels Company,** Chicago, has appointed the **Hofius Steel & Equipment Company,** Seattle, Wash., its representative in Washington and the northwestern territory.

**M. L. Bardach,** formerly president of the Bardach Iron & Steel Company, Norfolk, Va., has been appointed sales manager for the steam railroad department of the **Columbia Machine Works & Malleable Iron Company,** Brooklyn, N. Y.

**Robert E. Kinkead** chief engineer of the welding division of the **Lincoln Electric Company,** Cleveland, Ohio, has resigned to engage in consulting engineering in connection with electric arc welding, with headquarters at Cleveland.

**The Harnischfeger Corporation,** Milwaukee, Wis., has appointed the **Johnson-Beckwith Equipment Company,** Davenport, Iowa, its representative for Iowa, and the **Northwest Equipment Company** Billings Mont. its representative for Montana.

**H. V. Greenwood,** sales manager of the **Baldwin Chain & Manufacturing Company,** Worcester, Mass., has resigned to become Michigan representative of the **Foote Brothers Gear & Machine Company,** Chicago, with headquarters in the latter city.

**R. L. Wilson,** works manager of the East Pittsburgh, Pa., works of the **Westinghouse Electric & Manufacturing Company,** has been appointed assistant to vice-president and general manager, and **J. M. Hipple,** manager of the company's motor engineering department, has been promoted to works manager.

The Lo-Hed hoist division of the **American Engineering Company,** Philadelphia, Pa., has appointed direct factory representatives in Pittsburgh and Cleveland. The Pittsburgh office territory includes western Pennsylvania, West Virginia and counties along the eastern border of Ohio. The office is located in the Oliver building with **D. A. Polhemus** in charge and **John Kaiser** assisting. **W. C. Minier** will direct sales in northern Ohio, except for territory surrounding Toledo, with office at 2195 Bellfield avenue, Cleveland.

## Trade Publications

LUBRICATED PLUG VALVES.—The Barco Manufacturing Company, Chicago, has just completed and brought strictly up-to-date a new eight-page catalogue, No. 307, covering Barco lubricated plug valves. A special air hoist valve and a steam jacketed valve are also illustrated.

# Construction

ALGERS, WINSLOW & WESTERN.—This company has applied to the Interstate Commerce Commission for authority to build a line from Algers to a connection with the Cleveland, Cincinnati, Chicago & St. Louis, in Pike county, Ind., with a branch to a connection with the Southern, approximately 15 miles.

BOSTON & ALBANY.—This road plans to erect a new power plant at its shops at West Springfield, Mass., which will cost about $450,000. This plant is to be ready for operation early in 1928 and will be a steel frame brick building 114 ft. long, 50 ft. wide and 80 ft. high.

CANADIAN NATIONAL.—A contract has been awarded to Duff, Flint & Co., Regina, Sask., for the construction of water supply facilities at Kelso, Sask.

CANADIAN PACIFIC.—A contract for the grading of a line between Rosedale, Alta., and Bull Pound Creek, 33 miles, has been let to W. A. Dutton and F. Mannix, Winnipeg, Man. A contract for the grading of a line between Rosemary, Alta., and Bull Pound Creek, 23 miles, with a 6-mile spur to Gem Colony, has been awarded to H. G. MacDonald, Edmonton, Alta.

CHICAGO, ROCK ISLAND & PACIFIC.—This company has awarded a contract to Richard Sherbon, Ponca City, Okla., for the construction of a brick and concrete combined freight and passenger station at Ponca City, at a cost of about $20,000. A contract for the construction of extensions to five stalls of the roundhouse at Herington, Kan., involving the expenditure of about $20,000, has been let to Joseph E. Nelson & Sons, Chicago. A contract for the construction of a frame passenger station at Purlington, Chicago, has been let to the T. S. Leake Construction Company, Chicago, at a cost of about $10,000.

CENTRAL OF NEW JERSEY.—A contract has been let to the Anderson Construction Company, New Castle, Pa., for the construction of a passenger station at Perth Amboy, N. J., estimated to cost about $166,000.

CLEVELAND UNION TERMINALS.—A contract for the excavation of the eastern approach to the new passenger station of this company at Cleveland, Ohio, has been let to the H. E. Culbertson Company, Cleveland. A contract for the construction of a reinforced concrete retaining wall to provide for the moving Canal road outside of the tract selected as a location for the station and its trackage facilities has been awarded to the Hunkin-Conkey Construction Company, Cleveland. Bids have been asked for the construction of the Eagle avenue ramp which will span the tracks of the Wheeling & Lake Erie. The approach tracks to the new station will include a movable span over the Cuyahoga river. Construction of the station tracks and platforms will start early in 1928, following the razing of an office building which now stands on the site.

GREAT NORTHERN.—A contract has been awarded to the William Baumeister Company, Minneapolis, Minn., for the construction of a four-stall addition to the roundhouse at Taylor street, Minneapolis, at a cost of about $30,000.

NEW YORK CENTRAL.—A contract has been awarded to the Walsh Construction Company, Davenport, Iowa, for the construction of a grade separation project at South Bend, Ind. Following the completion of this work the Grand Trunk will use the New York Central tracks through the central portion of the city. Plans are being prepared for the construction of a union passenger station at South Bend.

NORTHERN PACIFIC.—A contract for the construction of new storage bins and bulking facilities at the grain elevator at Seattle, Wash., has been awarded to Albertson-Cornell Brothers and Walsh, Seattle. The total cost of the additional facilities is estimated at $100,000.

NORTHERN PACIFIC.—A contract has been let to C. Skooglun, St. Paul, Minn., for the construction of a reinforced concrete and brick power plant at Mandan, N. D. Outside dimensions of the building are 80 ft. by 40 ft. and the total cost is estimated at $100,000.

OREGON-WASHINGTON RAILROAD & NAVIGATION COMPANY.—The Portland, Ore., city council has approved the plans for the construction of a viaduct on Vancouver avenue over the tracks of this company. The total cost of the viaduct is estimated at $109,000, the railroad contributing $65,500 as its share of the expense of construction.

PENNSYLVANIA.—A contract for the construction of a 250-ton capacity reinforced concrete two-track simplex automatic electric coaling station at Tyrone, Pa., has been let to the Roberts & Schaeffer Co., Chicago. The contract will include the construction of an "R & S" gravity sand handling plant in conjunction with the coaling station.

READING.—A contract has been let to T. F. Foley Construction Company of Pittsburgh, Pa., for grade crossing elimination work at Glenside, Pa., at a cost of $250,000.

READING.—This road plans to erect a steel bridge on its line near Philadelphia and also a steel bridge on its line near Glenside, Pa.

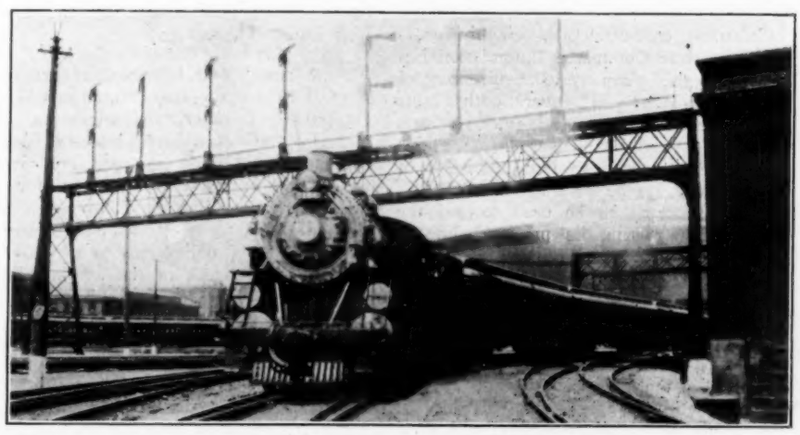
SEABOARD AIR LINE.—This road plans the construction of a hotel at Indiantown, Fla., which is about 34 miles north of West Palm Beach. A contract has been let to the C. V. York Company of Raleigh, N. C., for the erection of a passenger station at Arcadia, Fla. This station will be of a Spanish design with stucco walls and tile roofing and will be complete with umbrella sheds, paved walkways, station tracks, etc. E. W. Parker of Tampa, Fla., has been let a contract for the erection of a combination freight and passenger station at Dade City, which will be a Spanish type with stucco walls and tile roof.

SOUTHERN PACIFIC.—Plans are being prepared for the construction of a machine shop with additional track facilities and storehouses at Eugene, Ore., to cost approximately $261,000.

ST. LOUIS-SAN FRANCISCO.—A contract for the construction of a brick and stucco passenger station at Mansfield, Mo., with outside dimensions of 38 ft. by 107 ft. has been awarded to Grant Wyatt, Webster Grove, Mo.

TENNESSEE CENTRAL.—An order has been placed with Roberts & Schaeffer Co., for "N & W" type cinder handling equipment which the railroad will erect at Nashville, Tenn.

TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS.—A contract has been awarded for the construction of a reinforced concrete and brick power plant building at 3251 Scott Ave., St. Louis, to the Parker-Russell Mining & Manufacturing Company of that city. The building will be one story, 70 ft. by 46 ft., estimated to cost $20,000.



**The B. & O.'s National Limited Leaving St. Louis**

# Financial

ATLANTIC & WESTERN.—*Reorganization.*—The Atlantic & Western Railway has applied to the Interstate Commerce Commission for authority to acquire and operate the property of the Atlantic & Western Railroad, with a line from Sanford to Lillington, N. C., 24 miles. The new company also asked authority to issue $60,000 of first mortgage bonds and $181,500 of common stock.

BOSTON & MAINE.—*Bond Issue Approved.*—Stockholders, at their special meeting on September 9, voted to authorize the bond issue of $30,942,500 in connection with refinancing and refunding of securities held by the government.

CENTRAL OF NEW JERSEY.—*Equipment Trust.*—The Interstate Commerce Commission has authorized an issue of $1,064,000 of 4½ per cent equipment trust certificates, to be sold at not less than 100.653.

J. G. White & Co., Inc., has offered for sale $1,064,000 of 4½ per cent equipment trust certificates at prices to yield from 4 to 4.35 per cent depending upon maturity.

CHICAGO, MILWAUKEE & ST. PAUL.—*Argument on Reorganization Plan.*—Oral argument will be heard by the entire Interstate Commerce Commission on September 29 on the application of the new company, the Chicago, Milwaukee, St. Paul & Pacific Railroad, for authority to take over the property of the old company and issue its securities under the reorganization plan.

CHICAGO, ROCK ISLAND & PACIFIC.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to create an authorized issue of $80,000,000 of secured 4½ per cent bonds, due September 1, 1952, and to issue $40,000,000 of the bonds as Series A, the proceeds to be used to retire outstanding notes amounting to $28,862,000, including a note to the United States government for $7,862,000, and to reimburse the company for expenditures for additions and betterments. It is proposed to sell the bonds to Speyer & Co. at 92½ and interest.

COLORADO & SOUTHERN.—*Acquisition.*—The Interstate Commerce Commission has authorized this company to acquire control of the Fort Worth & Denver South Plains by purchase of its capital stock at par. The Fort Worth & Denver South Plains was also authorized to issue $200,000 of capital stock, to be sold to the C. & S., and the proceeds to be used toward the cost of constructing its proposed line in Texas.

DELAWARE, LACKAWANNA & WESTERN.—*Proposes Merger of Subsidiary.*—This company and the Lackawanna & Montrose have filed with the Interstate Commerce Commission a joint application for authority for the "consolidation and merger" of the Montrose company with the Lackawanna by exchange of stock. The Lackawanna owns 99 per cent of the stock. The application says it is estimated that a saving of $10,000 a year could be effected in accounting and other expenses.

GREAT NORTHERN.—*Asks Authority to Acquire Interest in O. C. & E.*—A hearing was held before Examiner Molster of the Interstate Commerce Commission at Washington on September 9 on this company's application for authority to acquire a one-half interest in the Oregon, California & Eastern, by purchase of one-half its stock from the Southern Pacific at one-half the cost of the stock to the Southern Pacific plus interest at 5 per cent, in accordance with an agreement recently reached between the two companies. The cost to the Great Northern is estimated at $900,000 to $1,000,000. F. G. Dorety, vice-president and general counsel, and W. P. Kenney, traffic vice-president of the Great Northern, testified regarding details of the agreement and the advantages to the Great Northern in giving it access to the Klamath Falls and Sprague river districts in southern Oregon in connection with the proposed line from Bend to Klamath Falls.

*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to sell at not less than 96, $20,000,000 of its general mortgage 4½ per cent gold bonds, Series D. No arrangement has been made for the sale of the bonds, the proceeds of which will be used to reimburse the carrier's treasury for expenditures between January 1, 1911, and June 30, 1921, for additions and betterments, construction of new lines, etc., not previously capitalized. The $20,000,000 of bonds forms part of an issue of $45,000,000, authentication and delivery of which was authorized by the Commission July 8, 1926, $15,000,000 of which have already been sold.

HOBOKEN RAILROAD & TERMINAL.—*Bonds Sold.*—P. W. Chapman & Co., Inc., of New York and Chicago, and the Steneck Trust Company of Hoboken, N. J., have sold $1,250,000 first lien 6 per cent sinking fund bonds, due September 1, 1947, at 99 and accrued interest to yield about 6.10 per cent.

MISSISSIPPI EASTERN. — *Acquisition.* — This company has applied to the Interstate Commerce Commission for authority to operate a line from Crandall to Cliff Williams, Miss., now owned by the Long-Bell Lumber Company.

NEW YORK, NEW HAVEN & HARTFORD.—*Preferred Stock Issue Authorized.*—The Interstate Commerce Commission has authorized this company to issue $49,036,700 of cumulative 7 per cent preferred stock, to be sold at not less than par, for the purpose of providing funds to pay a note for $43,000,000 to the United States government and other obligations to the government to the extent of the available proceeds. The Secretary of the Treasury has agreed to hold the note until October 15. The commission also authorized the issue from time to time of a like amount of common stock to be exchanged share for share for the preferred stock. The commission, however, failed to approve an agreement with J. P. Morgan & Co., to underwrite the issue for a commission of 2 per cent, or $980,734, saying it was not convinced that the applicant is justified in incurring the cost of the underwriting. With the favorable showing of the company, it says, most of the stock should be taken through the exercise of subscription rights and the applicant should have little difficulty in effecting satisfactory arrangements for disposing of any of the stock not taken by subscribers. It said that any funds received from the sale of the stock may be applied before October 15 to the reduction of the principal of the note pro tanto and the company should be able to arrange with bankers to take over the unpaid balance with the understanding that partial payments may be made on the principal from time to time on any interest date. Commissioner Woodlock in a concurring opinion said he had voted to disapprove the underwriting agreement solely upon the ground of economy.

OAKDALE & GULF.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Oakdale, La., to Pine Prairie, 17.6 miles.

READING.—*Hearing on Tentative Valuation.*—Agnew T. Dice, president of the Reading Company, testified at the hearing on September 13 before Examiners Marchand and Walsh of the Interstate Commerce Commission on the protests against the tentative valuation reports covering the Philadelphia & Reading and affiliated properties as of 1917. The tentative final value for the properties used by the Philadelphia & Reading was $200,927,187, but other properties of the system were included in 16 other reports and Mr. Dice took the position that the properties should have been valued as a system. He said that since valuation date $102,990,204 has been added to the investment in road and equipment accounts of the Reading system. On valuation date, Mr. Dice said, although there were 53 Class I carriers operating a greater mileage than the Philadelphia & Reading, only three carried a greater number of revenue tons.

SEABOARD AIR LINE.—*Bonds.*—The Interstate Commerce Commission has authorized an issue of $620,500 of first and consolidated mortgage bonds, to be pledged as security for short-term notes, and an issue of refunding mortgage bonds which, when taken at fair market value at time of pledge, will not exceed $1,251,398, also to be pledged as security for short-term notes. Terms and conditions were prescribed.

*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to acquire the stock of the Naples, Seaboard & Gulf and to issue $1,184,000 of first and consolidated 6 per cent bonds to reimburse its treasury for expenditures in acquiring the $5,000 stock and $1,179,000 of bonds of the Naples company.

SOUTHERN PACIFIC.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to acquire the rights, properties and franchises of the Lake Tahoe Railway & Transportation

Company, which it now operates under lease.

ST. LOUIS-SAN FRANCISCO.—*Bonds Authorized.*—The Interstate Commerce Commission has granted authority to this company to procure the authentication and delivery of $3,911,000 5 per cent prior lien mortgage bonds, series B, to be held in the carrier's treasury subject to the commission's further order. Authority has also been granted to the Muscle Shoals, Birmingham & Pensacola to issue $1,861,000 capital stock to be delivered to the St. Louis-San Francisco in reimbursement for advances in connection with the rehabilitation of the property. Authority has also been granted to the following subsidiaries of the Frisco to issue their promissory notes to be delivered to the Frisco in respect of expenses for additions and betterments: St. Louis, San Francisco & Texas, $38,301; Fort Worth & Rio Grande, $12,458; Birmingham Belt, $105,399; Kansas City, Memphis & Birmingham, $357,962; Kansas City, Fort Scott & Memphis, $166,658.

TONOPAH & GOLDFIELD.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon 6.75 miles of its track that has not been used for ten years.

WABASH CHESTER & WESTERN.—*Foreclosure Sale.*—This company was sold under foreclosure at Chester, Ill., on September 8, to L. G. Blinkley of Chicago for $400,000.

### Average Price of Stocks and Bonds

| | Sept. 13 | Last week | Last year |
|---|---|---|---|
| Average price of 20 representative railway stocks.. | 120.56 | 120.88 | 104.13 |
| Average price of 20 representative railway bonds.. | 95.29 | 94.95 | 91.16 |

### Dividends Declared

Beech Creek.—$.50 cents, quarterly, payable October 1 to holders of record September 15.

Chicago, North Shore & Milwaukee.—Preferred, 1½ per cent, quarterly; prior lien, 1¼ per cent, quarterly, both payable October 1 to holders of record September 15.

Pittsburgh, Bessemer & Lake Erie.—Common, $.75 cents, payable October 1 to holders of record September 15.

Pittsburgh, Fort Wayne & Chicago.—Common, 1¾ per cent, quarterly, payable October 1 to holders of record September 10. Preferred, 1¾ per cent, quarterly, payable October 4 to holders of record September 10.

Southern.—Common, 1¾ per cent, quarterly, payable November 1 to holders of record September 20. Preferred, 1¾ per cent, quarterly, payable October 15 to holders of record September 20.

Vermont & Massachusetts.—3 per cent, payable October 7 to holders of record September 7.

### Valuation Reports

The Interstate Commerce Commission has issued valuation reports finding the final value for rate-making purposes, of the property owned and used for common-carrier purposes as of the respective valuation dates, as follows:

| | | |
|---|---|---|
| TENTATIVE REPORTS | | |
| Grand River Valley..... | $260,250 | 1919 |
| Cisco & Northeastern.... | 1,170,000 | 1921 |
| FINAL REPORTS | | |
| Manufacturers' Railway (St. Louis) ..... | $1,330,000 | 1917 |
| Atchison Union Depot & R. R. Co..... | 156,000 | 1917 |
| St. Paul Union Depot Co.. | 5,884,000 | 1918 |
| Newburgh & South Shore.. | 3,321,897 | 1917 |

# *Railway Officers*

## Executive

**F. S. Biays** has been appointed assistant to the president of the Spokane, Portland & Seattle, with headquarters at Portland, Ore.

**J. S. Pyeatt,** president of the Denver & Rio Grande Western, with headquarters at Denver Colo., has in addition been elected president of the Denver Union Terminal Company, succeeding **J. H. Bradbury,** retired.

**W. S. Dwinnell,** vice-president of the Salem, Winona & Southern, with headquarters at Minneapolis, Minn., has been elected president with headquarters at the same point. **S. W. Dwinnell** has been elected vice-president, with headquarters at Minneapolis.

## Financial, Legal and Accounting

**J. L. Lenihan** has been appointed general auditor of the Mississippi Southern, with headquarters at Chicago, succeeding **C. M. Thomas,** deceased.

**H. S. Nakdimen** has been elected secretary and treasurer of the Ft. Smith, Subiaco & Rock Island, with headquarters at Ft. Smith, Ark., succeeding **R. H. Kagy,** who has been appointed assistant secretary and treasurer, with headquarters at Ft. Smith, Ark.

**J. C. Whitmarsh,** auditor of the Bastrop & Lake Providence, with headquarters at St. Louis, Mo., has also been elected vice-president of the Salem, Winona & Southern. **L. M. Rocheford** has been elected treasurer, with headquarters at Minneapolis, succeeding **J. D. Ferguson,** whose headquarters were at St. Louis. **James B. Dwinnell** has been elected secretary, with headquarters at Minneapolis, succeeding **J. P. Towery,** whose headquarters were at Shreveport, La.

## Operating

**J. N. Sparks,** superintendent of the Salem, Winona & Southern, with headquarters at West Eminence Mo., has been promoted to general manager, with headquarters at the same point.

**C. J. Bodemer,** assistant superintendent of machinery of the Louisville & Nashville, with headquarters at Louisville, Ky., has been appointed acting superintendent of machinery, with headquarters at the same point.

**J. E. Gibeault** has been appointed superintendent of the Levis division of the Canadian National, with headquarters at Levis, Que., succeeding **E. L. Desjardins,** who has retired after 51 years' service with the railway.

The jurisdiction of **H. L. Stonecifer,** superintendent of the Sandusky division of the New York, Chicago & St. Louis, has been extended to include both the Sandusky and Ft. Wayne divisions and his headquarters have been moved from Lima, Ohio, to Muncie, Ind.

**C. E. McWhorter** has been appointed chief dispatcher of the East Florida division of the Seaboard Air Line, with headquarters at West Palm Beach, Fla., succeeding **J. P. Mitchell** who has been transferred as dispatcher to the North Carolina division, at his request due to the health of his family.

**W. F. Brooks,** assistant trainmaster on the Pan Handle division of the Pennsylvania, with headquarters at Scully, Pa., has been transferred to Newark, Ohio, a newly created position. **J. F. Allenspaugh,** assistant trainmaster of the Pan Handle division, with headquarters at Carnegie, Pa., has been transferred to Scully succeeding Mr. Brooks.

**James M. Davidson,** division engineer of the Portage division of the Manitoba district of the Canadian National, with headquarters at Winnipeg, Man., has been appointed assistant superintendent of the Gladstone, Harte, Oakland, Pleasant Point and St. Rose subdivisions of the Portage division of the Manitoba district with headquarters at Portage la Prairie, Man., succeeding **J. H. McDiarmid,** who has been appointed supervisor of yard operations of the Central region, with headquarters at Toronto, Ont.

**Richard C. Morgan,** superintendent of terminals on the Canadian Pacific, with headquarters at Winnipeg, Man., has retired under the pension rules of the company because of ill health. Mr. Morgan was born on November 13, 1864, at Phillipsburg, Que. and entered railway service when 13 years of age as a stenographer in the general freight office of the Northern Pacific. Later he served as a clerk in the accounting department of the N. P., becoming a clerk in the president's office of the Great Northern at St. Paul, Minn., in 1895. In 1899 Mr. Morgan was appointed chief clerk to the general superintendent of the G. N. and assistant superintendent of the Dakota division at Larimore, N. D. Early in the following year he was appointed superintendent on the El Paso & Southwestern, with headquarters at Bisbee, Ariz., where he remained until 1903 when he returned to the Great Northern as assistant superintendent at Everett, Wash. From the latter part of 1903 until 1912 Mr. Morgan was successively superintendent of the Spokane Falls & Northern, now a part of the Great Northern, with headquarters at Spokane, Wash. and superintendent of the Great Northern, with headquarters at Marcus, Wash. then becoming superintendent of

terminals on the Canadian Pacific at Ft. William, Ont. In 1917 he was transferred to the Winnipeg terminals, where he remained until the time of his retirement with the exception of a short leave of absence during 1921 when he served as chairman of the railway management committee of the Reid Newfoundland Company (railway operations now discontinued) at St. John's, N. F.

## Traffic

The title of **F. J. Toner**, general freight and passenger agent of the Denver & Salt Lake, with headquarters at Denver, Colo., has been changed to traffic manager.

**W. D. Burch**, general agent of the Louisiana & Arkansas at Oklahoma City, Okla., has been transferred to Tulsa, Okla., to take charge of the newly opened office at that point.

The office of general freight and passenger agent of the De Queen & Eastern and the Texas, Oklahoma & Eastern, with headquarters at De Queen, Ark., has been abolished following the resignation of **D. E. Crawshaw**, who occupied that position.

**J. N. Gall**, district manager of the Boston & Maine, with headquarters at Worcester, Mass., has been appointed assistant general freight agent in charge of the company's enlarged system of off-line agencies in this country and in Canada, with headquarters at Boston, Mass.

**J. F. Andrews**, assistant general passenger agent of the Lehigh Valley, at 110 West 42nd street, New York City, has been transferred to the general office at 143 Liberty street, New York City. **S. W. Gafner**, assistant general passenger agent at Buffalo, N. Y., has been transferred to New York to succeed Mr. Andrews. **H. Martens, Jr.**, division passenger agent at Newark, N. J., has been appointed assistant general passenger agent at Buffalo, succeeding Mr. Gafner, and **K. H. Hopper** has been appointed division passenger agent at Newark, succeeding Mr. Martens. All appointments are effective October 1.

## Mechanical

**W. W. Payne** has been appointed road foreman of engines of the Alabama division of the Seaboard Air Line, with headquarters at Savannah, Ga., succeeding **A. E. Hopkins**, deceased.

**W. W. Wickline** has been appointed road foreman of engines of the Sewell Valley Sub-division of the Chesapeake & Ohio, with headquarters at Rainelle, W. Va., succeeding **A. M. Simms**, who has been assigned to other duties.

**L. K. Sillcox**, general superintendent of motive power of the Chicago, Milwaukee & St. Paul, with headquarters at Chicago, whose two months leave of absence expired on September 13, has resigned from the service of the Milwaukee, effective on that date.

**H. C. Quarles**, master mechanic of the West Florida division of the Seaboard Air Line, with headquarters at St. Petersburg, Fla., has been transferred in the same capacity to the South Florida division, with headquarters at Arcadia, Fla., succeeding **F. S. Markett** who has resigned. Mr. Quarles will be succeeded by **A. H. Whittaker** now general foreman in the locomotive department at Portsmouth, Va.

## Engineering, Maintenance of Way and Signaling

**T. S. Pattison** has been appointed assistant division engineer of the Chesapeake & Ohio, with headquarters at Chillicothe, O.

**E. R. Millidge**, roadmaster on the Western region of the Canadian National, with headquarters at Edson, Alta., has been promoted to division engineer of the Portage division with headquarters at Winnipeg, Man.

**F. J. Bishop**, engineer of maintenance of way of the Ann Arbor, with headquarters at Owosso, Mich., has been appointed engineer in charge of signals, bridges and buildings of the Toledo Terminal with headquarters at Toledo, Ohio. The office of chief engineer has been abolished, following the resignation of **J. Wanbecq**, who occupied that position.

**C. L. Barnaby**, division engineer of the Chicago Terminal division of the Pennsylvania, with headquarters at Chicago, Ill., has been appointed engineer maintenance of way of the Northern division. **E. O. Wood**, division engineer of the Buffalo division, with headquarters at Buffalo, N. Y., has been appointed division engineer of the Chicago Terminal division. **R. P. Graham**, supervisor on the Philadelphia Terminal division, with headquarters at West Philadelphia, Pa., has been appointed division engineer of the Buffalo division. **H. C. Johnson**, engineer maintenance of way of the Lake division, with headquarters at Cleveland, O., has been appointed to a similar position on the Eastern Ohio division. **F. M. Graham**, division engineer of the Columbus division, with headquarters at Columbus, O., has been appointed engineer maintenance of way of the Lake division. **T. L. Doyle**, division engineer of the Grand Rapids division at Grand Rapids, Mich., has been appointed division engineer of the Columbus division. **J. H. Shilling**, assistant division engineer of the St. Louis division, with headquarters at Terre Haute, Ind., has been appointed division engineer of the Grand Rapids division. **T. E. Nestor**, division engineer of the Conemaugh division at Pittsburgh, Pa., has been appointed to a similar position on the Pan handle division. **J. C. Poffenberger**, supervisor on the Philadelphia Terminal division at North Philadelphia, Pa., has been appointed division engineer of the Conemaugh division. **Louis P. Struble**, assistant engineer at Pittsburgh, has been appointed assistant to the chief engineer of the Central region.

## Purchases and Stores

**Walter C. Oke**, chief clerk to the division storekeeper on the Michigan Central, with headquarters at St. Thomas, Ont., has been appointed division storekeeper at that point succeeding **F. V. Tenkonohy**, who has been transferred to West Detroit, Mich.

## Special

**Dr. W. R. Whitman** has been appointed chief surgeon of the Norfolk & Western, with headquarters at Roanoke, Va., succeeding **Dr. S. S. Gale**, deceased.

**Dan M. Johnson**, Western manager in charge of colonization, agriculture and natural resources on the Canadian National, with headquarters at Winnipeg, Man., has been appointed European colonization manager with headquarters in London, England, succeeding **C. M. Dix**, who has resigned.

Since September 1, in conformity with an order of the Interstate Commerce Commission, the Wichita Falls, Ranger & Fort Worth is operated under lease by the Wichita Falls & Southern. General offices of all departments are maintained at Wichita Falls, and the jurisdiction of all officers of the Wichita Falls & Southern has been extended over the Wichita Falls, Ranger & Fort Worth.

## Obituary

**Robert W. Daniel**, assistant general freight agent of the Seaboard Air Line, with headquarters at Savannah, Ga., died on September 5.

**Eduardo Ortiz**, assistant secretary of the Department of Communications and Public Works of Mexico since 1922 and a member of the board of directors of the National Railways of Mexico, died at Tehuacan, Pue., on July 14, following a month's illness from blood poisoning. Shortly after completion of a course in civil engineering at the Mexico City National School of Engineers in 1899, Mr. Ortiz was employed for a year by the New York Rapid Transit Commission on the design of the New York subways. In 1926 he was appointed by President Obregon as Mexican representative to the Inter-American Convention of Electrical Communications.

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BEAMER STEAM SAND DRYER.—The Beamer steam sand dryer is described in Bulletin No. 97, issued by the Roberts & Schaefer Company, Chicago. In this dryer the steam coils form the retaining walls for the sand container, the pipes being placed close together so that they will hold wet sand but allow dry sand to pass between them. Two views of the assembled dryers are shown.